

# HOLT MATHEMATICS SYSTEM BOOK 4





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HOLT MATHEMATICS SYSTEM

# BOOK 4

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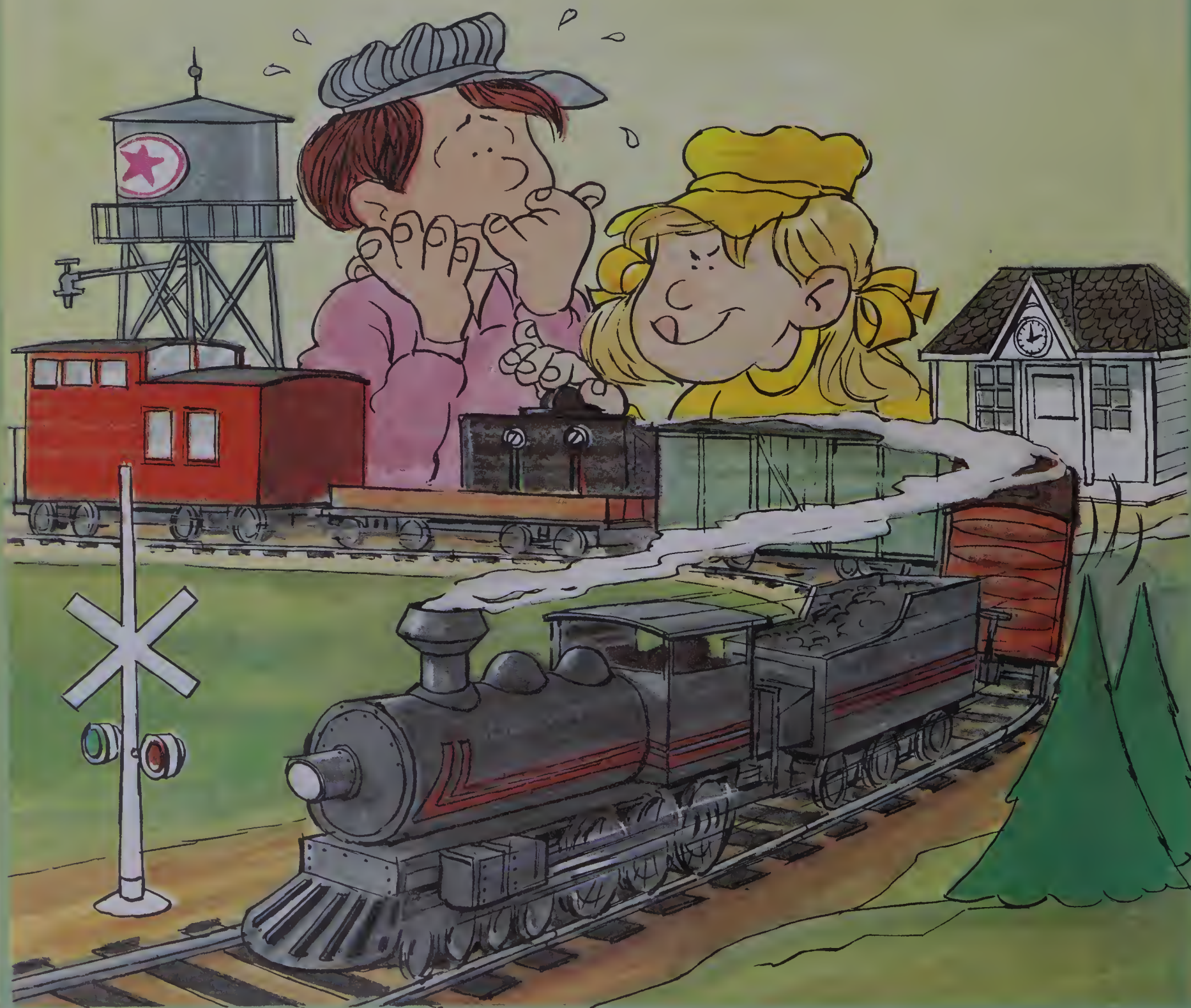
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# Chapter 1

# Whole Numbers

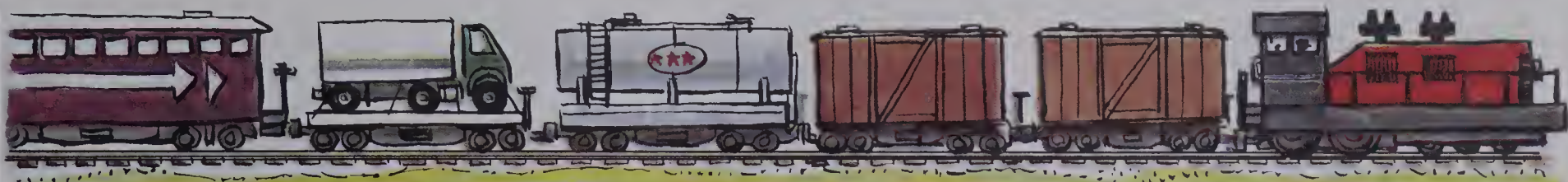
Place Value

Addition and Subtraction





# Numbers

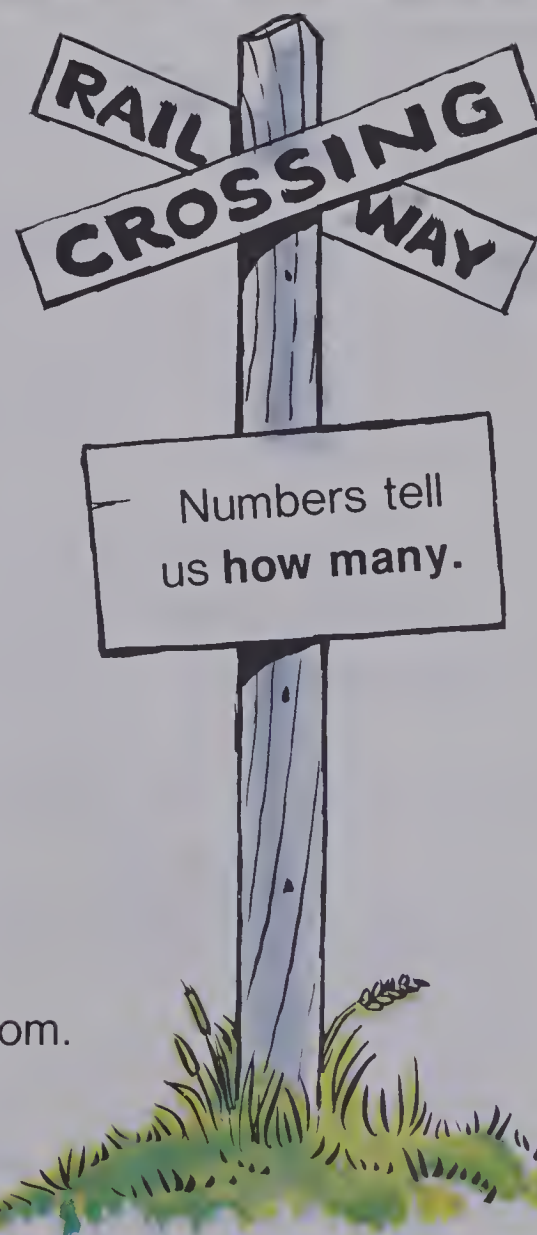


Engineer Joe uses these ten digits to show numbers.

0 1 2 3 4 5 6 7 8 9

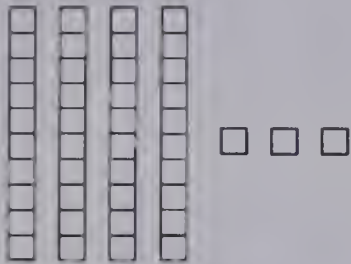
## Exercises

1. Use digits to help Engineer Joe.
  - (a) one engine: 1
  - (b) eight passenger cars: ■
  - (c) fourteen freight cars: ■
  - (d) five oil tank cars: ■
  - (e) ten refrigerator cars: ■
  - (f) twelve flat cars: ■
  - (g) no dining cars: ■
2. Use digits to show the following.
  - (a) the number of letters in your first name
  - (b) the number of months in a year
  - (c) the number of students in your classroom
  - (d) your age
  - (e) the number of lions in your classroom
3. Make a list of five **different** things in your classroom. Use digits to tell **how many** of each. Compare your list with a friend.

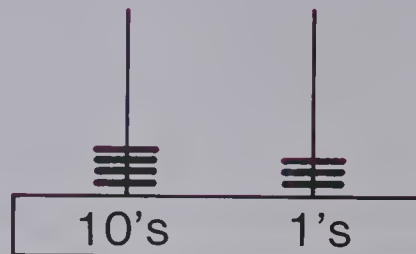


# Two-digit Numbers

These show 43.



4 tens and 3 ones



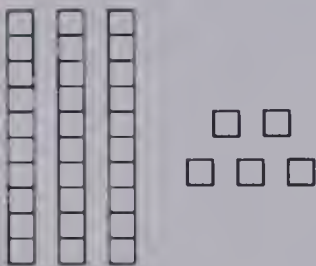
forty-three

tens	ones
4	3

## Exercises

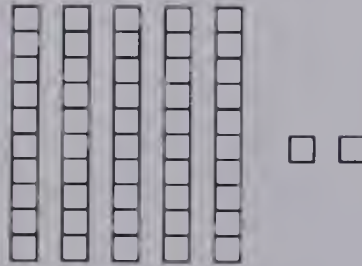
What's my number?

1.



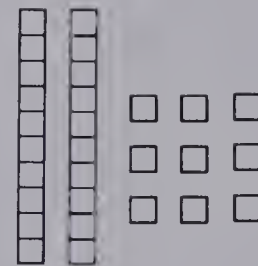
How many tens? ■  
How many ones? ■  
Number? ■

2.



How many tens? ■  
How many ones? ■  
Number? ■

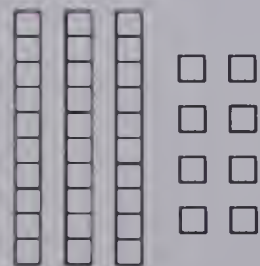
3.



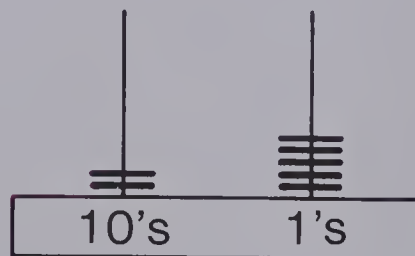
How many tens? ■  
How many ones? ■  
Number? ■

Write numerals to match each.

4.



5.



6.

tens	ones
5	2

7. 7 tens and 6 ones

8.



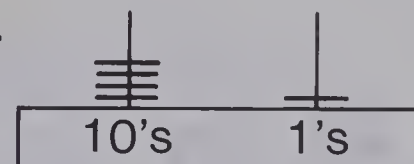
9.

tens	ones
4	0

10. sixty-four

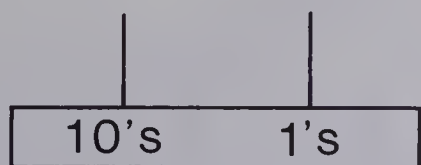
11. 8 tens and 5 ones.

12.



Show these in the manner suggested.

13. 15



14. 60

tens	ones

15. 37 (Write in words.)

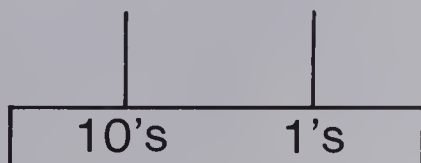
17. 53

tens	ones

16. 12 ■ tens and ■ ones

18. 74 ■ tens and ■ ones

19. 20



20. 52 (Write in words.)

Tell what the 5 means in each numeral.

21. 45

22. 57

23. 35

24. 50

25. 51

Write numerals for these.

26.  $30 + 5 = 35$

27.  $20 + 8$

28.  $10 + 3$

29.  $40 + 9$

30.  $50 + 7$

31.  $80 + 0$

32.  $60 + 6$

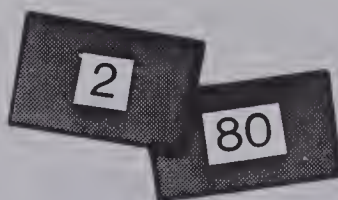
33.  $70 + 0$

Write numerals for these mixed-up cards.

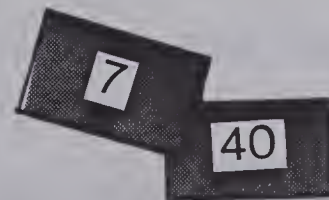
34.



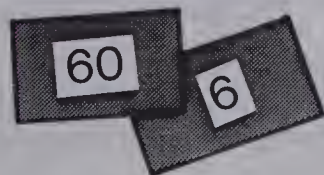
35.



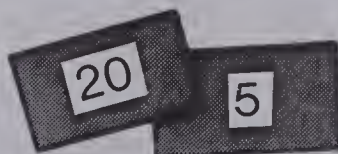
36.



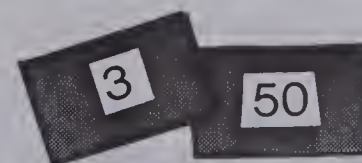
37.



38.

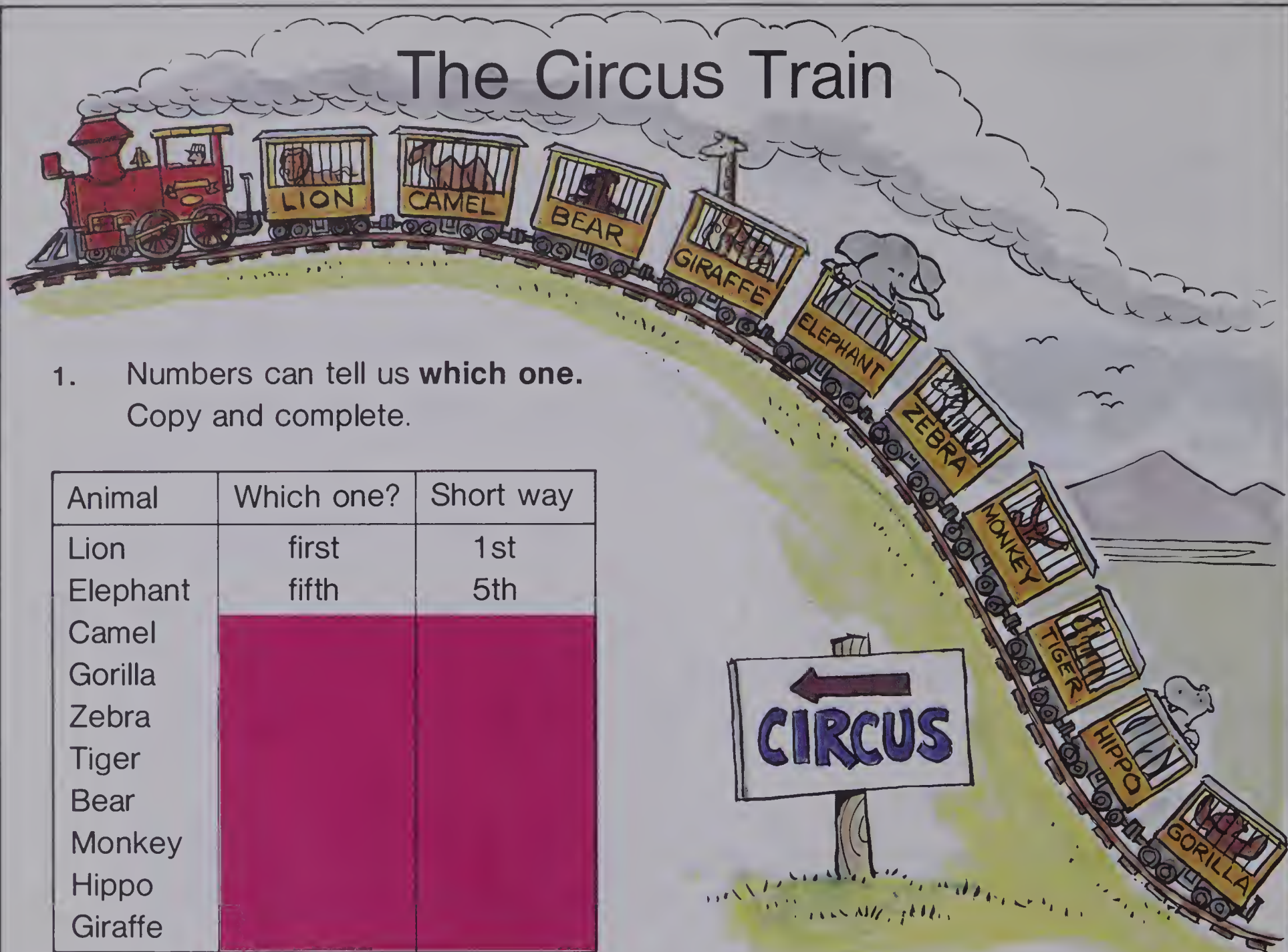


39.





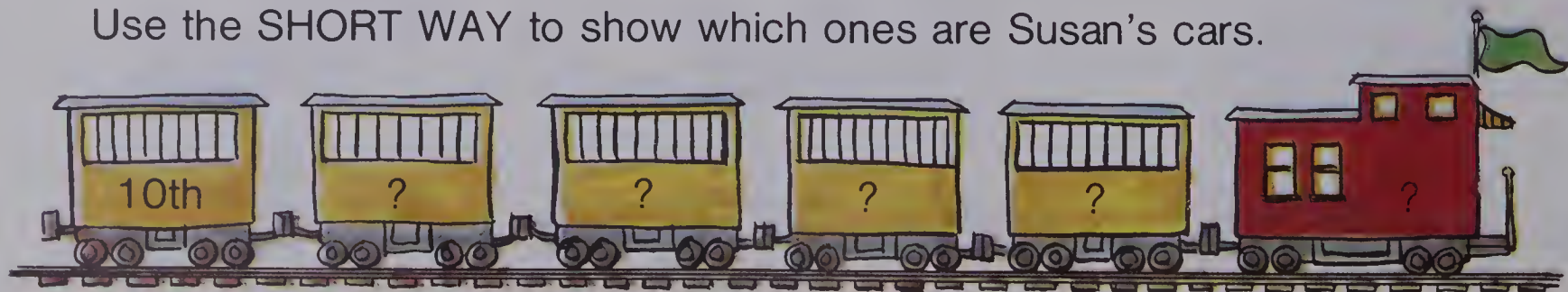
# The Circus Train



1. Numbers can tell us **which one**.  
Copy and complete.


Animal	Which one?	Short way
Lion	first	1st
Elephant	fifth	5th
Camel		
Gorilla		
Zebra		
Tiger		
Bear		
Monkey		
Hippo		
Giraffe		

2. Susan wants to add 5 more cars to the train.  
Use the SHORT WAY to show which ones are Susan's cars.



# Adding and Subtracting

sum

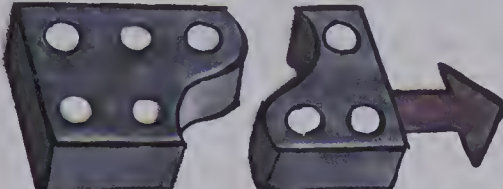
$$3 + 5 = 8$$


$$\begin{array}{r} 3 \\ + 5 \\ \hline 8 \end{array}$$

sum

Three plus five equals eight.

difference

$$8 - 3 = 5$$


$$\begin{array}{r} 8 \\ - 3 \\ \hline 5 \end{array}$$

difference

Eight minus three equals five.

## Exercises

1. Find each sum.

(a)  $8 + 4$

(b)  $5 + 3$

(c)  $9 + 0$

(d)  $6 + 2$

(e)  $3 + 0$

(f)  $6 + 9$

(g)  $8 + 5$

(h)  $7 + 9$

(i)  $8 + 6$

(j)  $10 + 7$

(k)  $8 + 8$

(l)  $5 + 5$

2. Find each difference.

(a)  $12 - 5$

(b)  $14 - 8$

(c)  $13 - 9$

(d)  $4 - 4$

(e)  $12 - 6$

(f)  $11 - 8$

(g)  $9 - 5$

(h)  $14 - 7$

(i)  $14 - 6$

(j)  $12 - 3$

(k)  $11 - 7$

(l)  $10 - 6$

3. Calculate.

(a)  $\begin{array}{r} 7 \\ + 6 \\ \hline \end{array}$

(b)  $\begin{array}{r} 8 \\ + 3 \\ \hline \end{array}$

(c)  $\begin{array}{r} 9 \\ + 5 \\ \hline \end{array}$

(d)  $\begin{array}{r} 7 \\ + 8 \\ \hline \end{array}$

(e)  $\begin{array}{r} 15 \\ - 6 \\ \hline \end{array}$

(f)  $\begin{array}{r} 18 \\ - 9 \\ \hline \end{array}$

(g)  $\begin{array}{r} 11 \\ - 3 \\ \hline \end{array}$

(h)  $\begin{array}{r} 12 \\ - 2 \\ \hline \end{array}$

(i)  $\begin{array}{r} 2 \\ + 0 \\ \hline \end{array}$

(j)  $\begin{array}{r} 4 \\ + 1 \\ \hline \end{array}$

(k)  $\begin{array}{r} 17 \\ - 8 \\ \hline \end{array}$

(l)  $\begin{array}{r} 15 \\ - 9 \\ \hline \end{array}$



# The Tree Farm

Kim planted 14 maple trees.  
She also planted 25 pine trees.  
How many trees did Kim plant altogether?



We can use the chart form.

	tens	ones
+	1 2	4 5

3 tens and 9 ones = 39

Kim planted 39 trees altogether.

Here's a short form.

Add ones.

$$\begin{array}{r} 14 \\ +25 \\ \hline 9 \end{array}$$

Add tens.

$$\begin{array}{r} 14 \\ +25 \\ \hline 39 \end{array}$$

## Exercises

Add using the chart form.

1. 
$$\begin{array}{r} 34 \\ +21 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 45 \\ +22 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 70 \\ +26 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 52 \\ +34 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 83 \\ +14 \\ \hline \end{array}$$

Add using the short form.

6. 
$$\begin{array}{r} 53 \\ +42 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 60 \\ +37 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 26 \\ +21 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 47 \\ +12 \\ \hline \end{array}$$

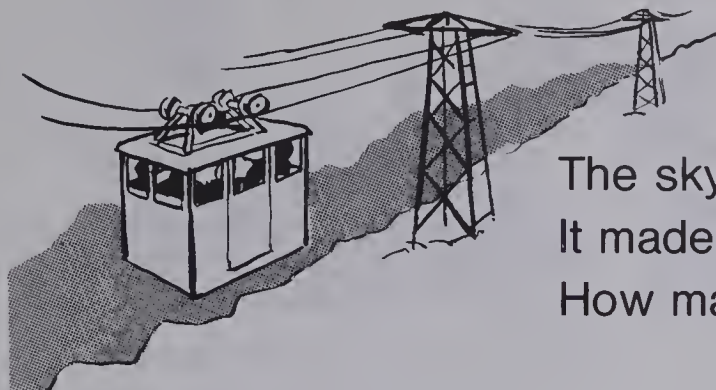
10. 
$$\begin{array}{r} 25 \\ +41 \\ \hline \end{array}$$

11. 16 apple trees.  
22 peach trees.  
How many trees altogether?

12. 42 maple trees.  
36 oak trees.  
How many trees altogether?



# Sky Car



The sky car made 25 trips in the morning.  
It made 37 trips in the afternoon.  
How many trips did it make altogether?

$$\begin{array}{r} \text{Add: } 25 \\ + 37 \\ \hline \end{array}$$

Here's a short form.

Chart form.

tens	ones
2	5
3	7

$$\begin{array}{l} 5 \text{ tens and } 12 \text{ ones} \\ = 6 \text{ tens and } 2 \text{ ones} \\ = 62. \end{array}$$

(a) Add ones.

$$\begin{array}{r} 25 \\ + 37 \\ \hline 2 \end{array}$$

(b) Add tens.

$$\begin{array}{r} 25 \\ + 37 \\ \hline 62 \end{array}$$

The sky car made 62 trips altogether.

$$7 + 5 = 12$$

## Exercises

Rename the following.

1. 5 tens and 14 = 6 tens and 4 ones
2. 7 tens and 16 = ■ tens and ■ ones
3. 4 tens and 15 = ■ tens and ■ ones
4. 2 tens and 18 = ■ tens and ■ ones

Add using the chart form.

$$\begin{array}{r} 27 \\ + 54 \\ \hline \end{array}$$

$$\begin{array}{r} 58 \\ + 26 \\ \hline \end{array}$$

$$\begin{array}{r} 45 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ + 39 \\ \hline \end{array}$$

$$\begin{array}{r} 72 \\ + 19 \\ \hline \end{array}$$

Add using the short form.

$$\begin{array}{r} 37 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 64 \\ + 29 \\ \hline \end{array}$$

$$\begin{array}{r} 48 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 26 \\ + 47 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ + 21 \\ \hline \end{array}$$

# Professor Q

Bob's dog just had a litter of puppies.  
5 puppies were white. 3 puppies were black.  
How many puppies were there altogether?



Professor Q asks questions.

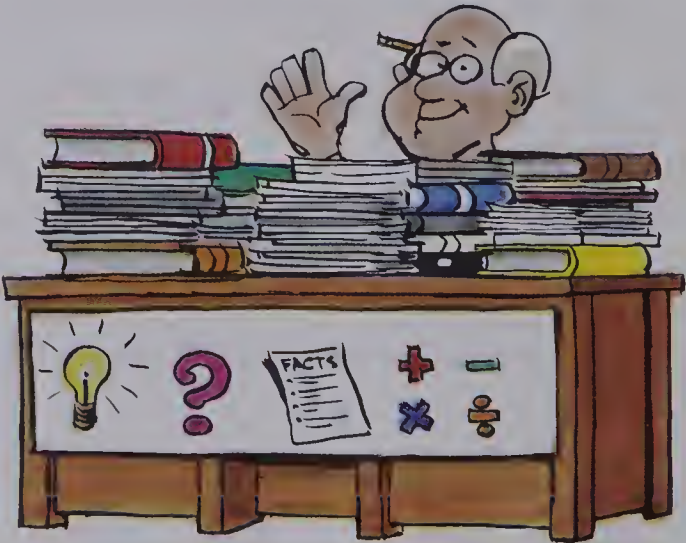
Bob looks for answers.

Questions	Answers
1. What is the question about? 2. What is being asked? 3. What are the important facts? 4. What should you do?	Puppies How many puppies? 5 white puppies and 3 black puppies Add

## Exercises

Read each mini-story.  
Write answers to Professor Q's four questions.

- John and Barry are saving hockey cards.  
John has 36 cards.  
Barry has 42 cards.  
How many hockey cards do they have altogether?
- Susan and Karen played in the Checker Tournament.  
Susan won 9 games.  
Karen won 19 games.  
How many more has Karen won than Susan?
- Mr. Foster drives 4 km.  
Ms. Bick drives 6 km.  
How much farther does Ms. Bick drive than Mr. Foster?



# Number Sentences

$8 + \blacksquare = 14$  is a **number sentence**.

We can replace  $\blacksquare$  with a number to make the sentence **true**.

$$8 + 6 = 14$$

## Exercises

Which are true?

1.  $4 + 7 = 11$

2.  $15 - 5 = 8$

3.  $7 - 3 = 4$

4.  $4 + 5 < 10$

5.  $5 + 6 > 10$

6.  $2 + 7 = 10$

Make these number sentences true.

7.  $9 + 7 = \blacksquare$

8.  $\blacksquare = 7 - 3$

9.  $15 - \blacksquare = 7$

10.  $3 + \blacksquare = 8$

11.  $7 + 6 = \blacksquare$

12.  $14 - 8 = \blacksquare$

13.  $3 + 2 = \blacksquare + 1$

14.  $8 + \blacksquare = 4 + 7$

15.  $12 = 5 + \blacksquare$

16.  $3 + 7 = \blacksquare + 5$

17.  $9 + \blacksquare = 16$

18.  $\blacksquare - 6 = 12$

19.  $14 - \blacksquare = 3$

20.  $18 = \blacksquare + 10$

21.  $11 + 6 = \blacksquare$

22.  $25 - \blacksquare = 6$

23.  $\blacksquare + 4 = 8 + 8$

24.  $\blacksquare - 6 = 14$

25.  $9 + 7 = 20 - \blacksquare$

★ 26.  $4 + 5 > \blacksquare$

★ 27.  $5 + 9 < \blacksquare$

★ 28.  $17 - 4 < \blacksquare$

★ 29.  $6 + \blacksquare < 9$

★ 30.  $2 + \blacksquare > 4$

★ 31.  $14 - \blacksquare < 12$

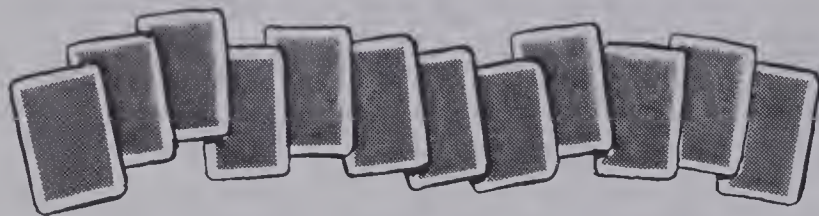
★ 32.  $\blacksquare + 12 < 15$

★ 33.  $8 + \blacksquare < 9$

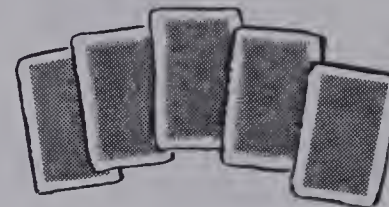


# Solving Problems

Brian has 12 cards.

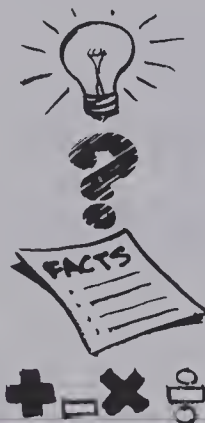


Mary has 5 cards.



How many more cards does Brian have than Mary?  
Find answers to Professor Q's four questions.

1. What is the question about?
2. What is being asked?
3. What are the important facts?
4. What should you do?



Cards.

How many more does Brian have than Mary?

Brian has 12, Mary has 5.

Subtract.

Write a number sentence to solve the problem.

$$12 - 5 = 7$$

Brian has 7 more cards than Mary.

## Exercises

1. Uva and Julie are collecting stories about horses.  
Uva has 6 stories.  
Julie has 8 stories.  
How many stories do they have altogether?  
(a) Answer Professor Q's four questions.  
(b) Write a number sentence to fit the problem.  
(c) How many stories do they have altogether?



For each of the following:

- (a) Answer Professor Q's four questions.
- (b) Write a number sentence to fit the problem.
- (c) Answer the problem.

2. Fred collects toy cars.  
He had 27 cars.  
Then he bought 4 more.  
How many does Fred have now?
3. Twenty-four crows sat on a fence.  
Eighteen more joined them on the fence.  
How many crows altogether?
4. There are 16 fish in the tank.  
Sharon brought 7 more.  
How many fish are there altogether?
5. There are 15 books about birds in the library.  
One class signed out 7 of them.  
How many bird books are left in the library?
6. Betty collected 25 shells along the beach.  
Her brother collected 18 shells.  
How many shells were collected altogether?
7. Bob delivers newspapers.  
He has 52 customers in one apartment building and 37 customers in another.  
How many customers does he have in the 2 buildings?



# The “Sweet Tooth” Twins



2 chocolate bars and  
3 chocolate bars

$$2 + 3 = 5$$

addend

addend

sum



3 chocolate bars and  
2 chocolate bars

$$3 + 2 = 5$$

addend

addend

sum

Both sums are the same.

**The order property of addition says:**

Changing the order of the addends does not change the sum.

## Exercises

1. Find the sums. What do you notice about them?

(a)  $3 + 5 = \blacksquare$ ;  $5 + 3 = \blacksquare$

(b)  $34 + 7 = \blacksquare$ ;  $7 + 34 = \blacksquare$

2. Find the sums. What do you notice about them?

(a)  $41 + 23 = \blacksquare$ ;  $23 + 41 = \blacksquare$

(b)  $26 + 34 = \blacksquare$ ;  $34 + 26 = \blacksquare$

3.  $26 + 37 = \blacksquare$     4.  $37 + 26 = \blacksquare$     5.  $48 + 25 = \blacksquare$     6.  $25 + 48 = \blacksquare$

7. 
$$\begin{array}{r} 34 \\ + 49 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 49 \\ + 34 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 62 \\ + 19 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 19 \\ + 62 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 58 \\ + 35 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 35 \\ + 58 \\ \hline \end{array}$$

# Inspector Hemlock's Discovery

$$6 + 8 + 3 = \blacksquare ??$$

( ) mean "Do me first!"

Inspector Hemlock discovered that:  $(6 + 8) + 3 \longrightarrow 14 + 3 = 17$

He also discovered that:  $6 + (8 + 3) \longrightarrow 6 + 11 = 17$

Can you explain Inspector Hemlock's discovery  
in your own words?

**The grouping property of addition says:**

Changing the grouping of the addends does not change the sum.

## Exercises

1. Find the sums.

(a)  $(4 + 5) + 6$

$$4 + (5 + 6)$$

(b)  $(12 + 7) + 8$

$$12 + (7 + 8)$$

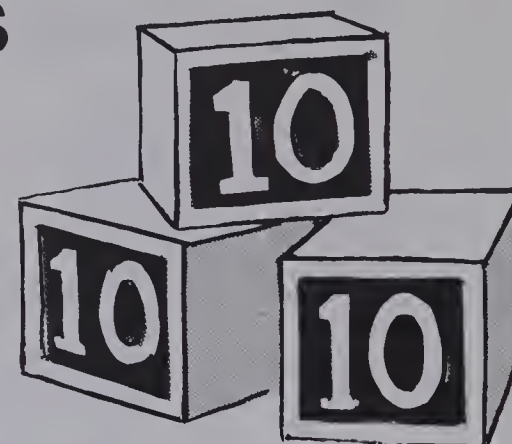
What did you discover about the sums?

2. Copy and complete.

Since I know	Then I know
$(7 + 6) + 2 = 15$	$7 + (6 + 2) = \blacksquare$
$(3 + 8) + 6 = 17$	$3 + (8 + 6) = \blacksquare$
$(4 + 7) + 5 = \blacksquare$	$4 + (7 + 5) = \blacksquare$
$(8 + 1) + 9 = \blacksquare$	$8 + (1 + 9) = \blacksquare$
$(3 + 6) + 2 = \blacksquare$	$3 + (6 + 2) = \blacksquare$
$(10 + 4) + 6 = \blacksquare$	$10 + (4 + 6) = \blacksquare$



# Three Addends



1. Sandy likes to find “tens” to make addition easier.  
How would Sandy do this question?

$$(2 + 7) + 3 = \blacksquare \quad \text{or} \quad 2 + (7 + 3) = \blacksquare$$

Add these.

2.  $9 + (2 + 8) = \blacksquare$

5.  $1 + 9 + 5 = \blacksquare$

8.  $4 + 7 + 3 = \blacksquare$

3.  $5 + 5 + 7 = \blacksquare$

6.  $3 + 7 + 8 = \blacksquare$

9.  $6 + 4 + 6 = \blacksquare$

4.  $7 + 6 + 4 = \blacksquare$

7.  $5 + 8 + 2 = \blacksquare$

10.  $2 + 9 + 8 = \blacksquare$

11. Sandy adds:

$$\begin{array}{r} 2 \\ 8 \\ + 4 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 4 \\ \hline 14 \end{array}$$

Murray adds:

$$\begin{array}{r} 2 \\ 8 \\ + 4 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 12 \\ \hline 14 \end{array}$$

- (a) What is Sandy’s sum?  
(b) What is Murray’s sum?  
(c) Explain how each found the sum.  
(d) Which way do you like better? Why?

Add.

12.  $\begin{array}{r} 8 \\ 2 \\ + 7 \\ \hline \end{array}$

13.  $\begin{array}{r} 9 \\ 6 \\ + 4 \\ \hline \end{array}$

14.  $\begin{array}{r} 3 \\ 7 \\ + 5 \\ \hline \end{array}$

15.  $\begin{array}{r} 3 \\ 9 \\ + 1 \\ \hline \end{array}$

16.  $\begin{array}{r} 5 \\ 5 \\ + 4 \\ \hline \end{array}$

17.  $\begin{array}{r} 4 \\ 6 \\ + 7 \\ \hline \end{array}$

18.  $\begin{array}{r} 1 \\ 9 \\ + 6 \\ \hline \end{array}$

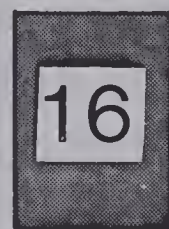
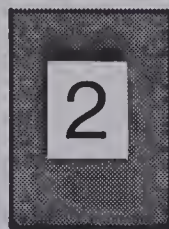
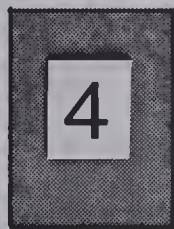
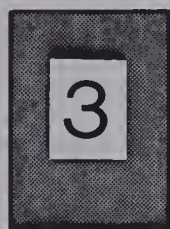
19.  $\begin{array}{r} 5 \\ 2 \\ + 8 \\ \hline \end{array}$

20.  $\begin{array}{r} 7 \\ 4 \\ + 5 \\ \hline \end{array}$

21.  $\begin{array}{r} 9 \\ 3 \\ + 6 \\ \hline \end{array}$



# A Card Challenge!



Susan shows two ways all the cards can be used to show addition.

(a)  $(3 + 4) + 2 + 7 = 16$

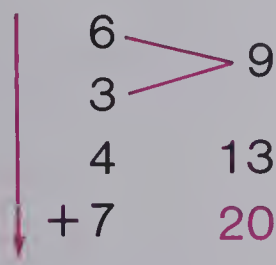
(b)  $(3 + 7) + 4 + 2 = 16$

Can you find other ways?

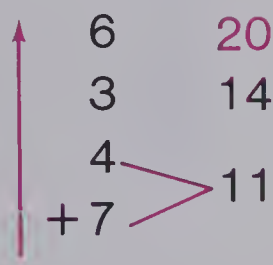
## Exercises

Bob, Brenda, and Ron added  $6 + 3 + 4 + 7$ .

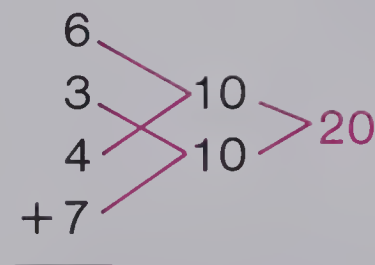
Bob:



Brenda:



Ron:



1. Tell how each one added.
2. What do you notice about the sums?

Add.

3. 
$$\begin{array}{r} 4 \\ 9 \\ 6 \\ +1 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 4 \\ 5 \\ 6 \\ +5 \\ \hline \end{array}$$

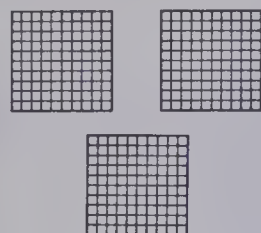
5. 
$$\begin{array}{r} 9 \\ 4 \\ 7 \\ +3 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 4 \\ 5 \\ 6 \\ +7 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 9 \\ 8 \\ 7 \\ +1 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 8 \\ 1 \\ 4 \\ +5 \\ \hline \end{array}$$

# Hundreds



3 hundreds



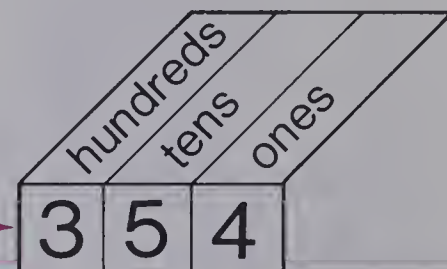
5 tens



4 ones

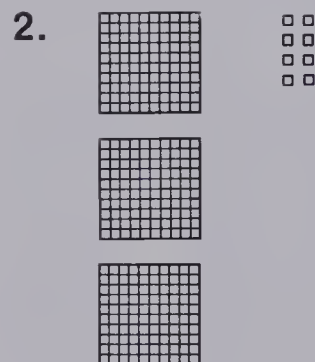
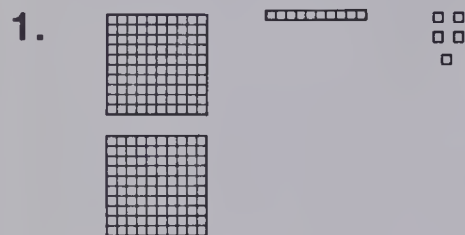
This numeral tells us how many.

It is read as "Three hundred fifty-four".



## Exercises

Write numerals for these.



Write numerals for these.

4. 5 hundreds  
0 tens  
3 ones

5. 4 hundreds  
8 tens  
5 ones

6. 2 hundreds  
6 tens  
0 ones

Write numerals for these.

7. seven hundred eighty-two  
9. two hundred fifty

8. six hundred seventeen  
10. three hundred four

Write these in words.

11. 428      12. 905      13. 713      14. 630      15. 299

# Parking

Max counts the number of cars using the City Parking Lot.

325 cars in the morning.  
414 cars in the afternoon.  
How many cars altogether?



Max uses a short form.

Add ones.

$$\begin{array}{r} 325 \\ + 414 \\ \hline 9 \end{array}$$

Add tens.

$$\begin{array}{r} 325 \\ + 414 \\ \hline 39 \end{array}$$

Add hundreds.

$$\begin{array}{r} 325 \\ + 414 \\ \hline 739 \end{array}$$

Max counted 739 cars altogether.

## Exercises

Add to find how many cars. Use the short form.

1. 
$$\begin{array}{r} 253 \\ + 432 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 306 \\ + 342 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 552 \\ + 246 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 240 \\ + 328 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 342 \\ + 525 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 641 \\ + 206 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 432 \\ + 360 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 180 \\ + 210 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 336 \\ + 243 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 620 \\ + 149 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 785 \\ + 113 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 300 \\ + 200 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 237 \\ + 230 \\ \hline \end{array}$$

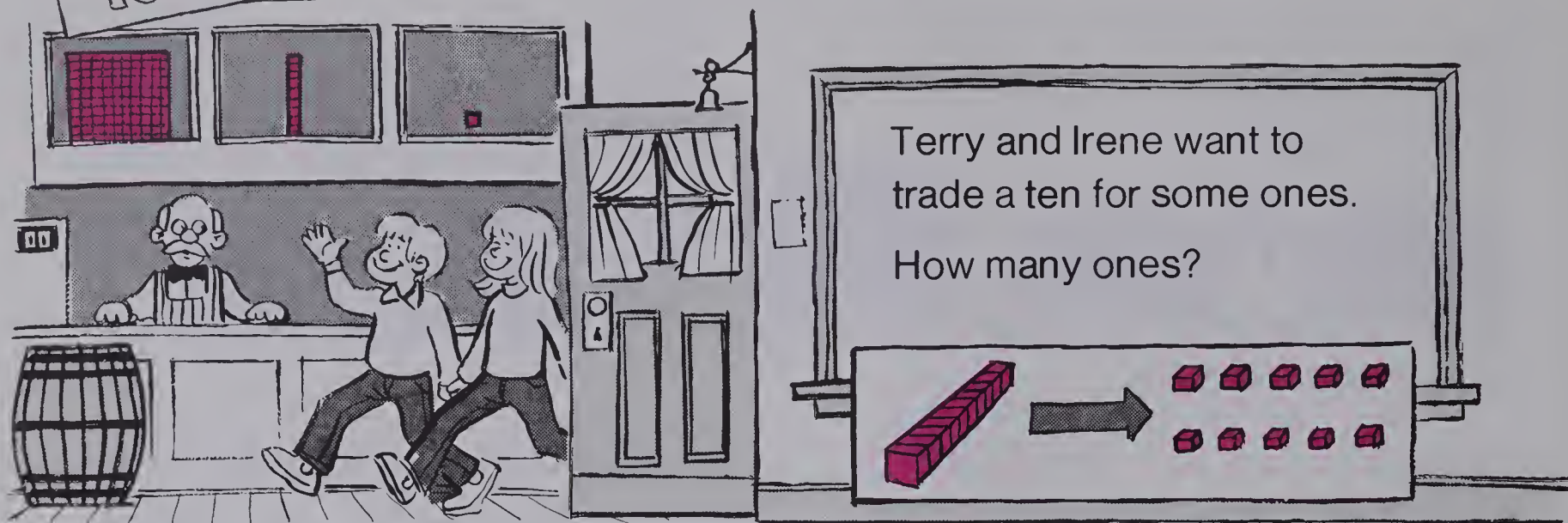
14. 
$$\begin{array}{r} 694 \\ + 304 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 733 \\ + 226 \\ \hline \end{array}$$



**SPECIAL  
TODAY**

# Ye Olde Trading Post



## Exercises

Help Terry and Irene trade these.

How many?

1. ☐ for ☐

2. ☐ for ☐

3. ☐ for ☐

How many tens can Terry get for the following?

4. 26 ones

6. 70 ones

8. 89 ones

tens	ones left over
2	6

5. 32 ones

7. 55 ones

9. 17 ones

tens	ones left over

How many hundreds can Irene get for the following?

10. 13 tens

12. 29 tens

14. 38 tens

hundreds	tens left over

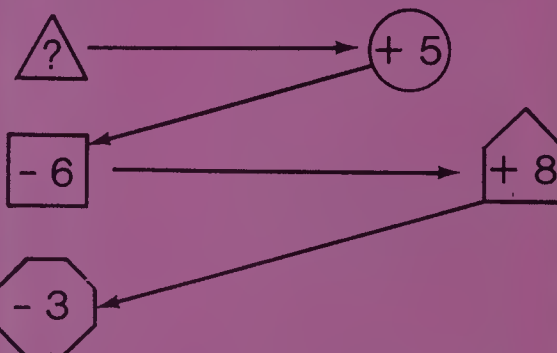
11. 20 tens

13. 67 tens

15. 92 tens

hundreds	tens left over

## BRAINTICKLER



The final answer is 10.  
What number did I  
start with?

# The Red Pop Shop

174 giant bottles were sold in the first week.  
168 giant bottles were sold in the second week.  
How many giant bottles were sold altogether?



Brenda uses a short form.

Add ones.

$$\begin{array}{r} \overset{1}{174} \\ + 168 \\ \hline 2 \end{array}$$

Add tens.

$$\begin{array}{r} \overset{11}{174} \\ + 168 \\ \hline 42 \end{array}$$

Add hundreds.

$$\begin{array}{r} \overset{11}{174} \\ + 168 \\ \hline 342 \end{array}$$

342 giant bottles sold altogether.

## Exercises

Add using the short form.

1. 
$$\begin{array}{r} 227 \\ + 188 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 368 \\ + 379 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 265 \\ + 186 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 427 \\ + 395 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 298 \\ + 246 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 535 \\ + 288 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 473 \\ + 317 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 625 \\ + 285 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 727 \\ + 135 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 488 \\ + 451 \\ \hline \end{array}$$

Pop sold	1st week	2nd week	Total
11. Ginger Ale	237	384	
12. Soda Fizz	325	296	
13. Orange Delight	468	275	
14. Cola	556	369	

# Tune Up



1. (a)  $\begin{array}{r} 34 \\ +21 \\ \hline \end{array}$

(b)  $\begin{array}{r} 42 \\ +56 \\ \hline \end{array}$

(c)  $\begin{array}{r} 12 \\ +35 \\ \hline \end{array}$

(d)  $\begin{array}{r} 64 \\ +22 \\ \hline \end{array}$

(e)  $\begin{array}{r} 51 \\ +17 \\ \hline \end{array}$

2. (a)  $\begin{array}{r} 47 \\ +38 \\ \hline \end{array}$

(b)  $\begin{array}{r} 26 \\ +56 \\ \hline \end{array}$

(c)  $\begin{array}{r} 35 \\ +29 \\ \hline \end{array}$

(d)  $\begin{array}{r} 78 \\ +14 \\ \hline \end{array}$

(e)  $\begin{array}{r} 66 \\ +29 \\ \hline \end{array}$

3. (a)  $\begin{array}{r} 6 \\ 4 \\ 7 \\ +2 \\ \hline \end{array}$

(b)  $\begin{array}{r} 7 \\ 5 \\ +3 \\ \hline \end{array}$

(c)  $\begin{array}{r} 5 \\ 1 \\ 4 \\ +8 \\ \hline \end{array}$

(d)  $\begin{array}{r} 2 \\ 3 \\ 8 \\ +3 \\ \hline \end{array}$

(e)  $\begin{array}{r} 9 \\ 4 \\ +6 \\ \hline \end{array}$

4. (a)  $\begin{array}{r} 624 \\ +342 \\ \hline \end{array}$

(b)  $\begin{array}{r} 158 \\ +741 \\ \hline \end{array}$

(c)  $\begin{array}{r} 365 \\ +413 \\ \hline \end{array}$

(d)  $\begin{array}{r} 954 \\ + 35 \\ \hline \end{array}$

(e)  $\begin{array}{r} 801 \\ +118 \\ \hline \end{array}$

5. (a)  $\begin{array}{r} 326 \\ +489 \\ \hline \end{array}$

(b)  $\begin{array}{r} 257 \\ +184 \\ \hline \end{array}$

(c)  $\begin{array}{r} 575 \\ +396 \\ \hline \end{array}$

(d)  $\begin{array}{r} 492 \\ +359 \\ \hline \end{array}$

(e)  $\begin{array}{r} 678 \\ +146 \\ \hline \end{array}$

Each correct answer is worth 1 point.  
Graph your results.



Top Pop Award	5 pt.					
Fine Fizzer Award	4 pt.					
Big Bottler Award	3 pt.					
More Practice	2 pt.					
More Practice	1 pt.					
Question		1	2	3	4	5





# City Market

John brought 67 cabbages to market.

He sold 24.

How many cabbages are left?

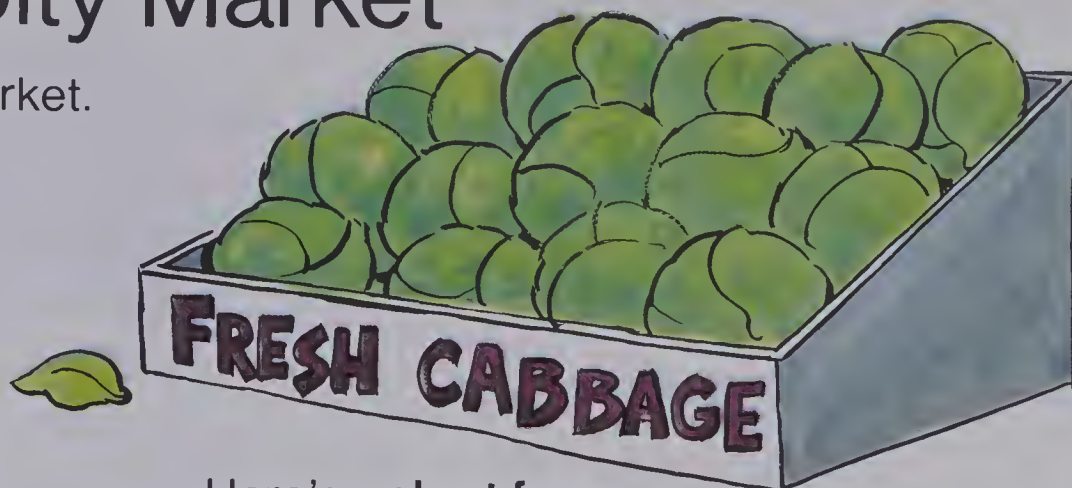
$$\begin{array}{r} \text{Subtract:} \quad 67 \\ - 24 \\ \hline \end{array}$$

Chart form:

	tens	ones
	6	7
-	2	4

4 tens and 3 ones = 43

There are 43 cabbages left.



Here's a **short form**.

(a) Subtract ones.

$$\begin{array}{r} 67 \\ - 24 \\ \hline 3 \end{array}$$

(b) Subtract tens.

$$\begin{array}{r} 67 \\ - 24 \\ \hline 43 \end{array}$$

## Exercises

Subtract using the chart form.

1. 
$$\begin{array}{r} 58 \\ - 31 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 65 \\ - 42 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 87 \\ - 46 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 39 \\ - 12 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 83 \\ - 63 \\ \hline \end{array}$$

Subtract using the short form.

6. 
$$\begin{array}{r} 64 \\ - 33 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 99 \\ - 26 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 45 \\ - 32 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 58 \\ - 26 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 65 \\ - 20 \\ \hline \end{array}$$

Solve.

11. 27 watermelons.  
15 sold.  
How many left?

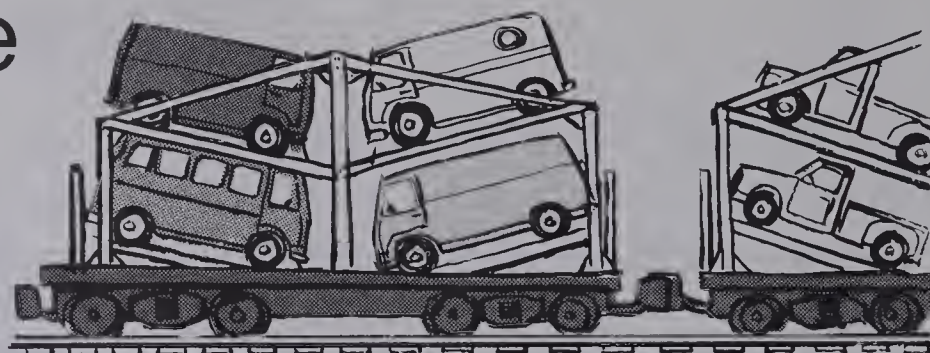
12. 48 cucumbers.  
32 sold.  
How many left?

# Trucks on the Move

Engineer Joe counted 72 mini-trucks.

He also counted 38 vans.

How many more mini-trucks than vans?



Subtract:

Chart form:

Short form:

Subtract ones.

Subtract tens.

6	12
<del>7</del>	<del>2</del>
- 3	8
	4

6	12
<del>7</del>	<del>2</del>
- 3	8
3	4

$$\begin{array}{r} 6 \ 12 \\ \cancel{7} \ \cancel{2} \\ - 3 \ 8 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 6 \ 12 \\ \cancel{7} \ \cancel{2} \\ - 3 \ 8 \\ \hline 3 \ 4 \end{array}$$

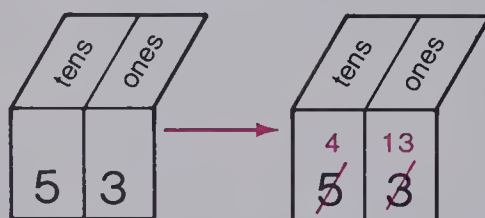
3 tens and 4 ones = 34

There are 34 more mini-trucks than vans.

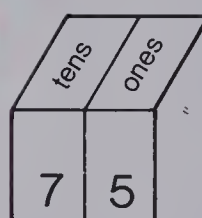
## Exercises

Rename to show 10 more ones.

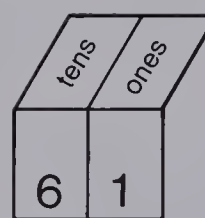
1.



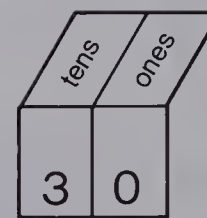
2.



3.



4.



5.

$$\begin{array}{r} 42 \\ - 27 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 51 \\ - 38 \\ \hline \end{array}$$

7.

$$\begin{array}{r} 35 \\ - 18 \\ \hline \end{array}$$

8.

$$\begin{array}{r} 64 \\ - 27 \\ \hline \end{array}$$

9.

$$\begin{array}{r} 62 \\ - 34 \\ \hline \end{array}$$

10.

$$\begin{array}{r} 82 \\ - 36 \\ \hline \end{array}$$

11.

$$\begin{array}{r} 71 \\ - 45 \\ \hline \end{array}$$

12.

$$\begin{array}{r} 75 \\ - 16 \\ \hline \end{array}$$

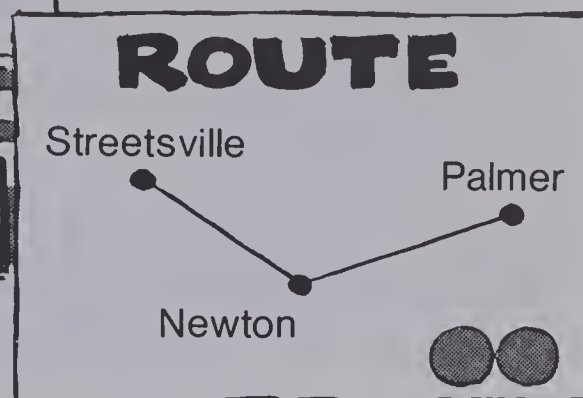
13.

$$\begin{array}{r} 40 \\ - 15 \\ \hline \end{array}$$

14.

$$\begin{array}{r} 60 \\ - 29 \\ \hline \end{array}$$

# Go-Train



258 passengers got on the train at Streetsville.

123 passengers got off the train at Newton.

How many passengers are left on the train?

- (a) Write. (b) Subtract ones. (c) Subtract tens. (d) Subtract hundreds.

$$\begin{array}{r} 258 \\ - 123 \\ \hline \end{array}$$

$$\begin{array}{r} 258 \\ - 123 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 258 \\ - 123 \\ \hline 35 \end{array}$$

$$\begin{array}{r} 258 \\ - 123 \\ \hline 135 \end{array}$$

There are 135 passengers left on the train.

## Exercises

Subtract using the short form.

1. 
$$\begin{array}{r} 364 \\ - 121 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 558 \\ - 240 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 237 \\ - 212 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 659 \\ - 321 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 473 \\ - 370 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 289 \\ - 104 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 753 \\ - 241 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 518 \\ - 114 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 396 \\ - 324 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 672 \\ - 531 \\ \hline \end{array}$$

11. 345 passengers on at Drayton.  
124 passengers off at Rockville.  
How many passengers left?

12. 268 passengers on at Weber.  
227 passengers off at York.  
How many passengers left?



# Country Villages



(a) Write.

$$\begin{array}{r} 634 \\ - 286 \\ \hline \end{array}$$

How many more people live in Dunham than in Oakum?

(b) Rename and subtract ones.

$$\begin{array}{r} 2 \quad 14 \\ 6 \cancel{3} \cancel{4} \\ - 286 \\ \hline 8 \end{array}$$

(c) Rename and subtract tens.

$$\begin{array}{r} 12 \\ 5 \cancel{3} \cancel{4} \\ - 286 \\ \hline 48 \end{array}$$

(d) Subtract hundreds.

$$\begin{array}{r} 12 \\ 5 \cancel{3} \cancel{4} \\ - 286 \\ \hline 348 \end{array}$$

There are 348 more people in Dunham than in Oakum.

## Exercises

1. Rename to show 10 more ones.

(a)

tens	ones
5	3

 $\rightarrow$ 

tens	ones
<del>5</del>	<del>3</del> 13

(b)

tens	ones
6	2

(c)

tens	ones
2	5

2. Rename to show 10 more tens.

(a)

hundreds	tens	ones
6	5	2

(b)

hundreds	tens	ones
9	4	6

(c)

hundreds	tens	ones
8	3	5

3. (a)

$$\begin{array}{r} 725 \\ - 358 \\ \hline \end{array}$$

(b)

$$\begin{array}{r} 824 \\ - 436 \\ \hline \end{array}$$

(c)

$$\begin{array}{r} 521 \\ - 84 \\ \hline \end{array}$$

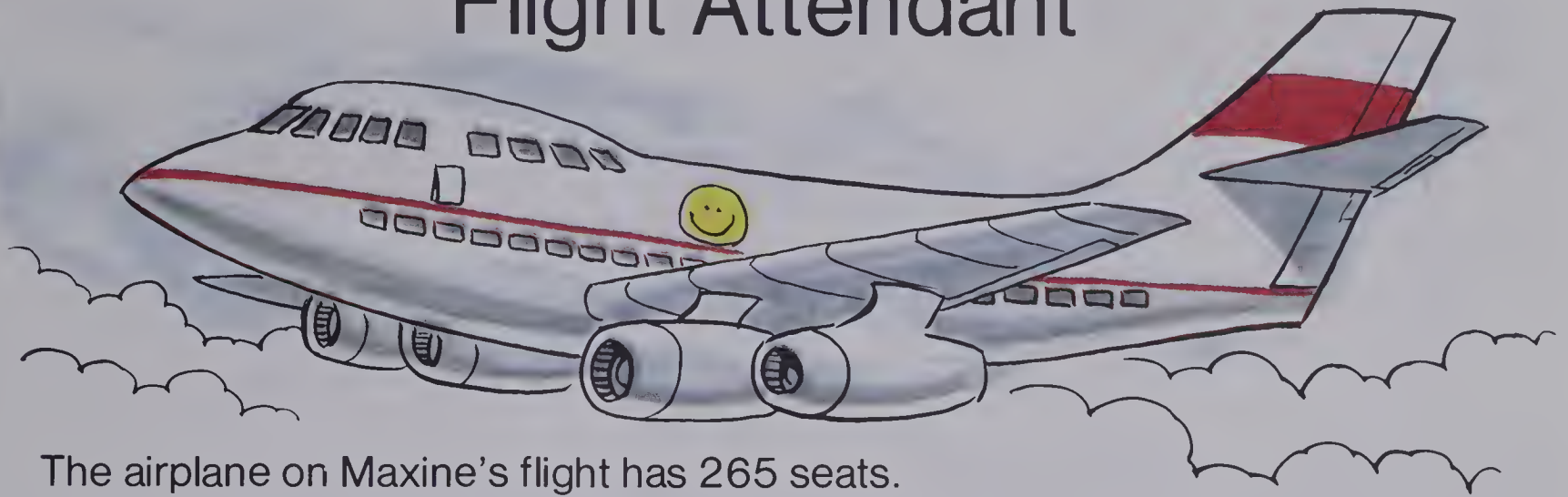
(d)

$$\begin{array}{r} 435 \\ - 149 \\ \hline \end{array}$$

(e)

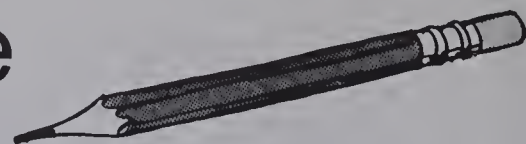
$$\begin{array}{r} 982 \\ - 690 \\ \hline \end{array}$$

# Flight Attendant



1. The airplane on Maxine's flight has 265 seats.  
Maxine counts 178 passengers.  
How many empty seats are there?
2. Sandy checks the number of soft drinks in the storage galley.  
She counts 93 Cola and 57 Ginger ale.  
How many more Cola are there than Ginger ale?
3. There are 276 passengers on a Trans-Atlantic flight to London.  
Sandy provided 152 passengers with pillows.  
How many passengers did not have pillows?
4. On a morning flight to Vancouver, 37 passengers wanted to read newspapers and 56 wanted to read magazines.  
How many more magazines were read than newspapers?
5. Over the last few months, Carlos has flown 324 h while Maxine has flown 286 h.  
How many more hours has Carlos flown than Maxine?
6. Last Saturday, Carlos' flight covered 545 km while Sandy's flight covered 823 km.  
How many more kilometres did Sandy fly than Carlos?

# Let's Make Sure



$$\begin{array}{r} ? \quad 86 \quad ? \\ - 54 \\ \hline ? \quad \quad ? \\ 32 \end{array}$$

$$\begin{array}{r} (a) \quad 86 \\ - 54 \\ \hline 32 \end{array} \quad \text{Subtract.}$$

$$\begin{array}{r} (b) \quad 86 \\ - 54 \\ \hline + 32 \\ \hline 86 \end{array} \quad \text{Add.}$$

$$\begin{array}{r} (c) \quad 86 \\ - 54 \\ \hline + 32 \\ \hline 86 \end{array} \quad \text{Compare.}$$

Same numbers  $\rightarrow$  correct answer.

Different numbers  $\rightarrow$  incorrect answer; subtract again.

## Exercises

Check by addition to find the ones with correct answers.

$$\begin{array}{r} 1. \quad 48 \\ - 21 \\ \hline 26 \end{array}$$

$$\begin{array}{r} 2. \quad 275 \\ - 123 \\ \hline 152 \end{array}$$

$$\begin{array}{r} 3. \quad 67 \\ - 13 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 4. \quad 378 \\ - 165 \\ \hline 223 \end{array}$$

$$\begin{array}{r} 5. \quad 989 \\ - 658 \\ \hline 341 \end{array}$$

Subtract, then check by addition.

$$\begin{array}{r} 6. \quad 882 \\ - 140 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 95 \\ - 42 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 649 \\ - 205 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 65 \\ - 32 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 435 \\ - 22 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 568 \\ - 225 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 782 \\ - 391 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 87 \\ - 25 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 465 \\ - 127 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 648 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 374 \\ - 156 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 75 \\ - 39 \\ \hline \end{array}$$

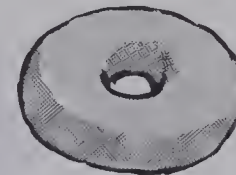
$$\begin{array}{r} 18. \quad 623 \\ - 256 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 583 \\ - 345 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 983 \\ - 874 \\ \hline \end{array}$$



# Working With Zero



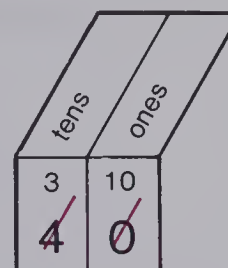
Peter and Karen are working with zeros.

Peter thinks:

$$\begin{array}{r} ? \ 40 \\ ? \ -13 \ ? \\ \hline ? \end{array}$$



Rename

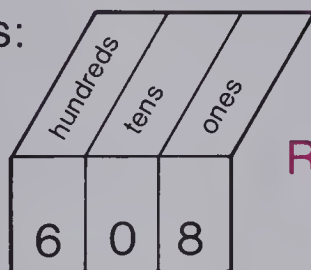


Peter writes:

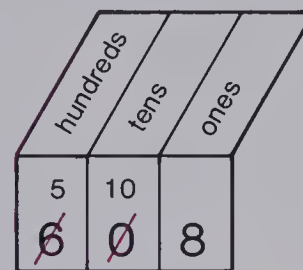
$$\begin{array}{r} 3 \ 10 \\ \cancel{4} \ 0 \\ -13 \\ \hline 27 \end{array}$$

Karen thinks:

$$\begin{array}{r} ? \ 608 \ ? \\ ? \ -235 \ ? \\ \hline ? \end{array}$$



Rename



Karen writes:

$$\begin{array}{r} 5 \ 10 \\ \cancel{6} \ 0 \ 8 \\ -235 \\ \hline 373 \end{array}$$

## Exercises

Rename, then subtract.

1. 
$$\begin{array}{r} 4 \ 10 \\ \cancel{5} \ 0 \\ -15 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 80 \\ -46 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 30 \\ -18 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 80 \\ -25 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 70 \\ -18 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 6 \ 10 \\ \cancel{7} \ 0 \ 5 \\ -241 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 608 \\ -452 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 409 \\ -233 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 507 \\ -354 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 403 \\ -271 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 560 \\ -225 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 308 \\ -174 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 780 \\ -437 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 602 \\ -456 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 705 \\ -27 \\ \hline \end{array}$$



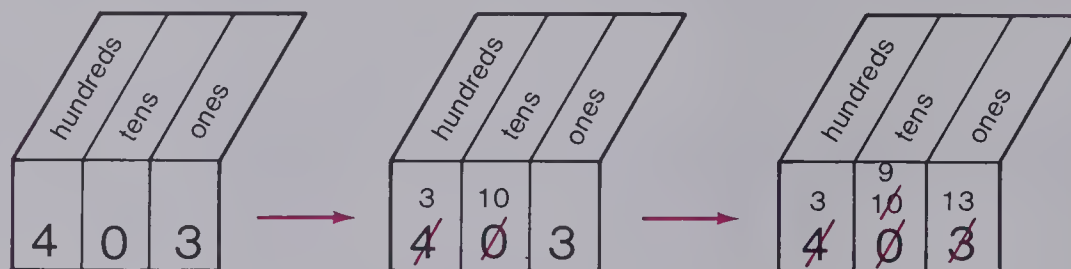
# More Zeros



$$\begin{array}{r} ? \ 403 \ ? \\ ? - 125 \ ? \\ \hline ? \end{array}$$

Mark works with this special problem.

Mark thinks:

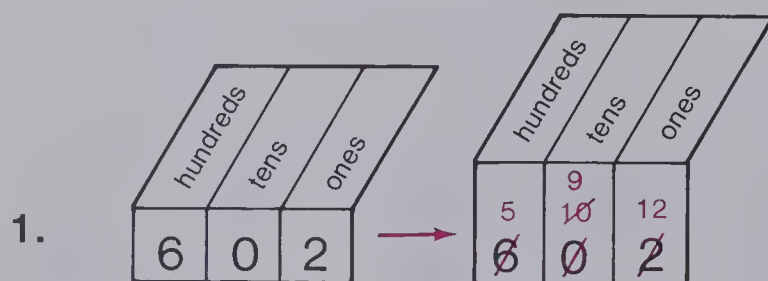


Mark writes:

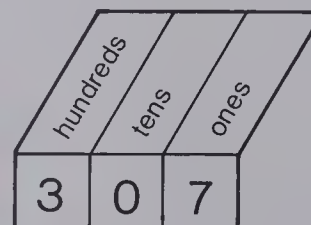
$$\begin{array}{r} 9 \\ 31013 \\ - 125 \\ \hline 278 \end{array}$$

## Exercises

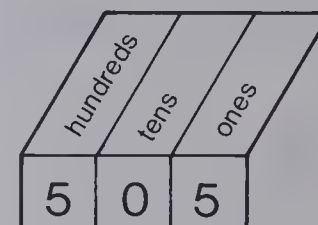
Rename to show more tens and ones.



2.



3.



Rename, then subtract.

4. 
$$\begin{array}{r} 9 \\ 51014 \\ - 328 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 705 \\ - 536 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 402 \\ - 118 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 307 \\ - 159 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 803 \\ - 517 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 701 \\ - 456 \\ \hline \end{array}$$

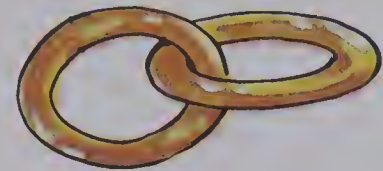
10. 
$$\begin{array}{r} 606 \\ - 249 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 502 \\ - 163 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 907 \\ - 235 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 805 \\ - 478 \\ \hline \end{array}$$

# Double Zeros



$$\begin{array}{r} ? \\ 500 \quad ? \\ ? - 352 \\ \hline ? \end{array}$$

Kristen thinks:

h	t	o
5	0	0

→

h	t	o
<del>5</del>	<del>0</del>	0

→

h	t	o
<del>5</del>	<del>0</del>	<del>0</del>

Notice how Kristen works with double zeros.

Kristen writes:

$$\begin{array}{r} 9 \\ 4 \cancel{10} 10 \\ \cancel{500} \\ - 352 \\ \hline 148 \end{array}$$

## Exercises

Rename to show more tens and ones.

1.

h	t	o
3	0	0

→

h	t	o
<del>3</del>	<del>0</del>	<del>0</del>

2.

h	t	o
8	0	0

3.

h	t	o
2	0	0

Rename, then subtract.

4.

$$\begin{array}{r} 600 \\ - 257 \\ \hline \end{array}$$

5.

$$\begin{array}{r} 700 \\ - 324 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 200 \\ - 76 \\ \hline \end{array}$$

7.

$$\begin{array}{r} 900 \\ - 255 \\ \hline \end{array}$$

8.

$$\begin{array}{r} 500 \\ - 213 \\ \hline \end{array}$$

9.

$$\begin{array}{r} 300 \\ - 64 \\ \hline \end{array}$$

10.

$$\begin{array}{r} 800 \\ - 186 \\ \hline \end{array}$$

11.

$$\begin{array}{r} 400 \\ - 248 \\ \hline \end{array}$$

12.

$$\begin{array}{r} 700 \\ - 318 \\ \hline \end{array}$$

13.

$$\begin{array}{r} 600 \\ - 442 \\ \hline \end{array}$$

14.

$$\begin{array}{r} 200 \\ - 42 \\ \hline \end{array}$$

15.

$$\begin{array}{r} 500 \\ - 236 \\ \hline \end{array}$$

16.

$$\begin{array}{r} 300 \\ - 167 \\ \hline \end{array}$$

17.

$$\begin{array}{r} 400 \\ - 55 \\ \hline \end{array}$$

18.

$$\begin{array}{r} 800 \\ - 617 \\ \hline \end{array}$$

19.

$$\begin{array}{r} 700 \\ - 281 \\ \hline \end{array}$$

20.

$$\begin{array}{r} 402 \\ - 105 \\ \hline \end{array}$$

21.

$$\begin{array}{r} 706 \\ - 214 \\ \hline \end{array}$$

22.

$$\begin{array}{r} 630 \\ - 304 \\ \hline \end{array}$$

23.

$$\begin{array}{r} 508 \\ - 70 \\ \hline \end{array}$$



# Practice

Add.

$$\begin{array}{r} 1. \quad 64 \\ + 31 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 56 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 47 \\ + 35 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 38 \\ + 29 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 89 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 346 \\ + 212 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 418 \\ + 431 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 289 \\ + 564 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 627 \\ + 295 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 753 \\ + 69 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 11. \quad 74 \\ - 22 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 65 \\ - 43 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 63 \\ - 48 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 82 \\ - 57 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 92 \\ - 84 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 835 \\ - 212 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 684 \\ - 352 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 723 \\ - 387 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 912 \\ - 468 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 935 \\ - 861 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 560 \\ - 213 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 470 \\ - 346 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 850 \\ - 218 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 740 \\ - 527 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 250 \\ - 37 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 708 \\ - 425 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 607 \\ - 142 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 504 \\ - 412 \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 909 \\ - 376 \\ \hline \end{array}$$

$$\begin{array}{r} 30. \quad 306 \\ - 215 \\ \hline \end{array}$$

$$\begin{array}{r} 31. \quad 803 \\ - 326 \\ \hline \end{array}$$

$$\begin{array}{r} 32. \quad 602 \\ - 455 \\ \hline \end{array}$$

$$\begin{array}{r} 33. \quad 901 \\ - 473 \\ \hline \end{array}$$

$$\begin{array}{r} 34. \quad 705 \\ - 297 \\ \hline \end{array}$$

$$\begin{array}{r} 35. \quad 605 \\ - 306 \\ \hline \end{array}$$

$$\begin{array}{r} 36. \quad 400 \\ - 157 \\ \hline \end{array}$$

$$\begin{array}{r} 37. \quad 800 \\ - 576 \\ \hline \end{array}$$

$$\begin{array}{r} 38. \quad 700 \\ - 295 \\ \hline \end{array}$$

$$\begin{array}{r} 39. \quad 300 \\ - 116 \\ \hline \end{array}$$

$$\begin{array}{r} 40. \quad 200 \\ - 108 \\ \hline \end{array}$$

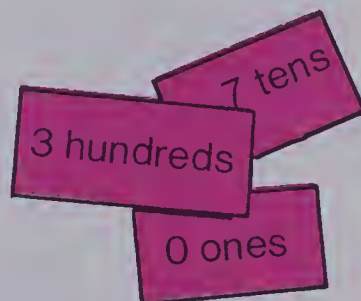
# Chapter Test

Write the correct number for each set of mixed-up cards.

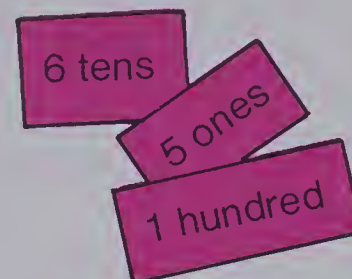
1.



2.



3.



Add.

4.  $7 + 6 + 4$

5. 
$$\begin{array}{r} 8 \\ 2 \\ + 7 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 35 \\ + 43 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 47 \\ + 19 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 362 \\ + 107 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 215 \\ + 43 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 677 \\ + 294 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 508 \\ + 257 \\ \hline \end{array}$$

Subtract.

12. 
$$\begin{array}{r} 76 \\ - 24 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 92 \\ - 58 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 646 \\ - 305 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 722 \\ - 445 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 570 \\ - 316 \\ \hline \end{array}$$

17. 
$$\begin{array}{r} 908 \\ - 422 \\ \hline \end{array}$$

18. 
$$\begin{array}{r} 403 \\ - 168 \\ \hline \end{array}$$

19. 
$$\begin{array}{r} 800 \\ - 325 \\ \hline \end{array}$$

Solve.

20. The radio in a Stratosphere 747 must be checked every 600 h of flying time. The Stratosphere has flown 427 h. How many hours before the radio needs a check-up?

21. North American Airways sold 573 tickets last week and 368 tickets this week. How many tickets have they sold altogether?

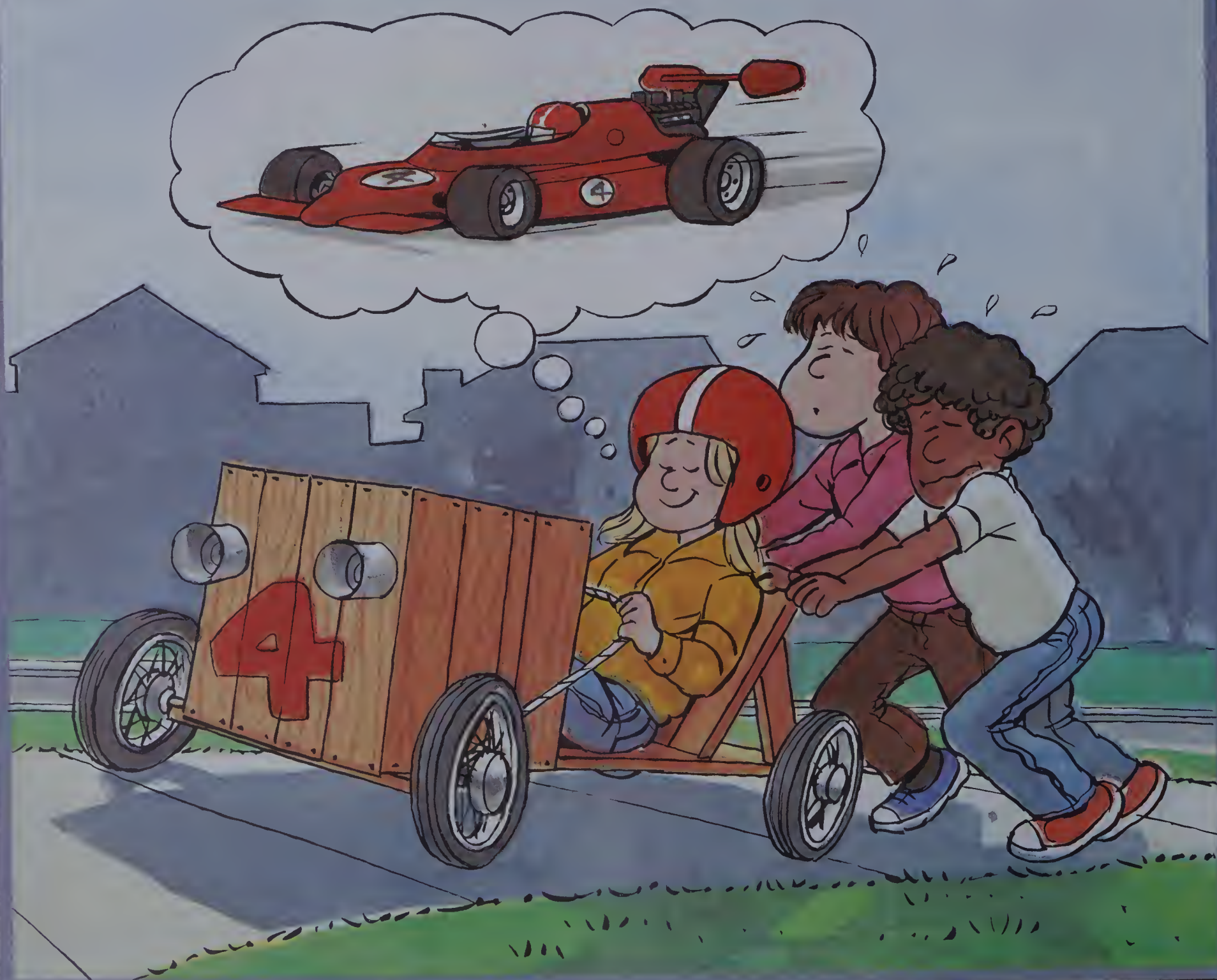
# Chapter 2

# Whole Numbers

6-digit Place Value

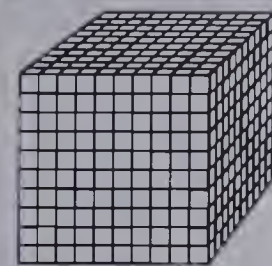
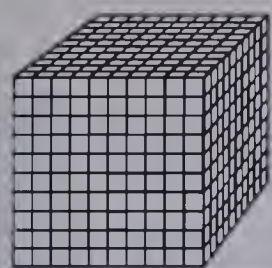
Addition and Subtraction

Measurement

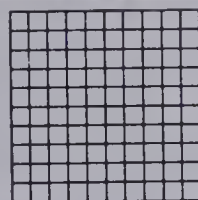
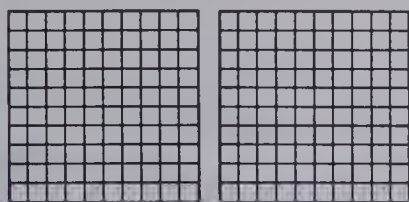




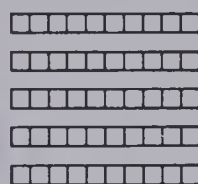
# Thousands



2 thousands



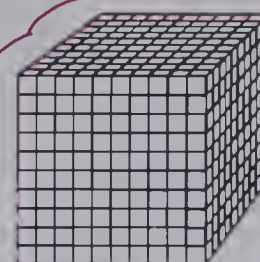
3 hundreds



5 tens



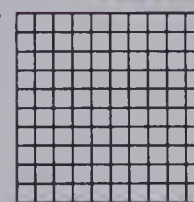
4 ones



1000



10

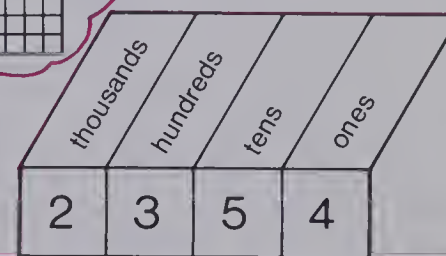


100



1

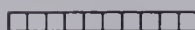
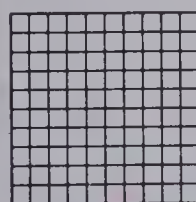
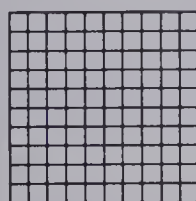
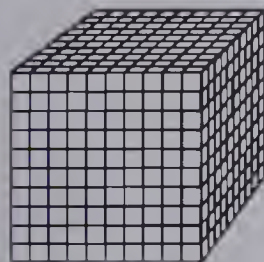
This number tells **how many**.  
two thousand, three hundred fifty-four



## Exercises

1. Write numbers for these.

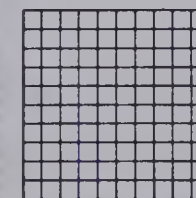
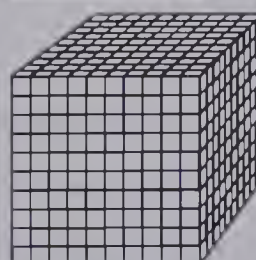
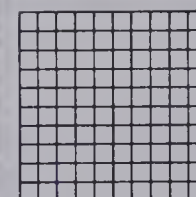
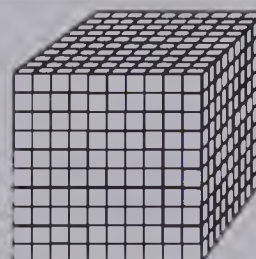
(a)



(c) 6 thousands  
5 hundreds  
0 tens  
2 ones

(d) 2 thousands  
4 hundreds  
8 tens  
5 ones

(b)



(e) 5 thousands  
2 hundreds  
4 tens  
0 ones

2. Write numbers for these.

- (a) six thousand, two hundred forty-seven
- (b) nine thousand, sixty-four
- (c) four thousand, eight hundred nineteen
- (d) two thousand, five hundred

# Headlines

48 792 is read as:

“forty-eight thousand, seven hundred ninety-two”.

Place-value chart:

ten thousands	thousands	hundreds	tens	ones
4	8	7	9	2

Meaning:

4 ten thousands, 8 thousands, 7 hundreds, 9 tens, 2 ones.



## Exercises

Write numbers for these.

1. 5 ten thousands, 2 thousands, 0 hundreds, 0 tens, 0 ones.
2. 3 ten thousands, 6 thousands, 0 hundreds, 5 tens, 2 ones.
3. 7 ten thousands, 0 thousands, 9 hundreds, 4 tens, 6 ones.

Write the numbers for these.

4. twenty-seven thousand, four hundred ninety-three
5. fifty-eight thousand
6. fifty-eight thousand, sixty-three
7. seventy-two thousand, five hundred four
8. sixty-one thousand, two hundred nineteen

Give the value of each underlined digit.

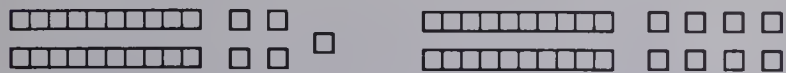
9. 37 526

10. 86 051

11. 43 921

12. 54 108

# Comparing Numbers



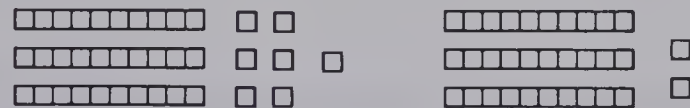
Let's compare

25 and 28

2 tens                      5 ones  
 ↙ same ↘  
 2 tens                      8 ones

25 is less than 28.

$$25 < 28$$



Let's compare

37 and 32

3 tens                      7 ones  
 ↙ same ↘  
 3 tens                      2 ones

37 is greater than 32.

$$37 > 32$$

When numbers are the same we use "equals".

17 equals 17.

$$17 = 17$$

## Exercises

Compare. Use =, <, or >.

- |            |             |             |             |
|------------|-------------|-------------|-------------|
| 1. 14 ● 10 | 2. 23 ● 29  | 3. 12 ● 12  | 4. 48 ● 40  |
| 5. 18 ● 29 | 6. 19 ● 21  | 7. 35 ● 27  | 8. 24 ● 24  |
| 9. 52 ● 46 | 10. 30 ● 61 | 11. 65 ● 65 | 12. 48 ● 41 |

Compare. Use =, <, or >.

13. 237 and 251

2 hundreds    3 tens    7 ones  
 ↙ same ↘  
 2 hundreds    5 tens    1 one  
 $237 < 251$

- |               |               |
|---------------|---------------|
| 14. 382 ● 359 | 15. 508 ● 578 |
| 16. 231 ● 231 | 17. 374 ● 347 |
| 18. 682 ● 614 | 19. 425 ● 425 |
| 20. 248 ● 261 | 21. 539 ● 532 |
| 22. 309 ● 342 | 23. 591 ● 573 |



# Let's Compare

5862 and 5827

5 thousands  
same  
5 thousands

8 hundreds  
same  
8 hundreds

6 tens  
greater  
2 tens

2 ones  
7 ones

$5862 > 5827$

## Exercises

Compare. Use =, >, or <.

1.  $5243 \bullet 5261$

4.  $3982 \bullet 4261$

7.  $27 \bullet 27$

10.  $4253 \bullet 4067$

13.  $6841 \bullet 6088$

2.  $3860 \bullet 3265$

5.  $7324 \bullet 7324$

8.  $446 \bullet 464$

11.  $45 \bullet 54$

14.  $499 \bullet 994$

3.  $6275 \bullet 5896$

6.  $5837 \bullet 5783$

9.  $312 \bullet 299$

12.  $958 \bullet 975$

15.  $808 \bullet 886$

Solve.

16. John's mass is 48 kg.

Jim's mass is 51 kg.

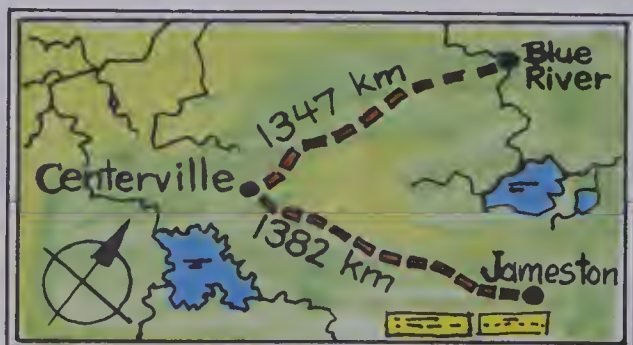
Who is heavier?

17. Susan's height is 112 cm.

Brenda's height is 108 cm.

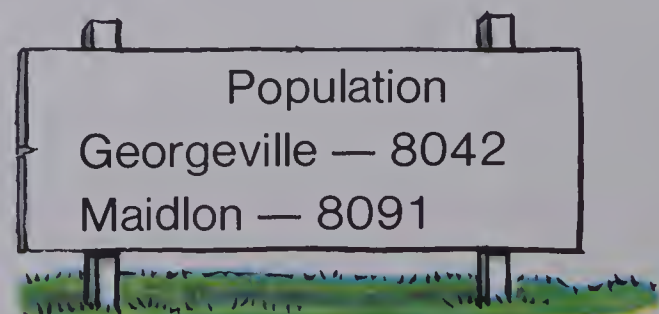
Who is taller?

18.



Which distance is greater?

19.



Which population is larger?

**SPECIAL  
TODAY**

# Ye Olde Trading Post



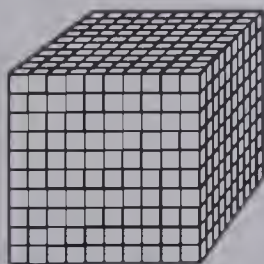
## Exercises

Help Brian and Susan trade these.

1. How many tens for a hundred?
2. How many hundreds for a thousand?
3. How many?

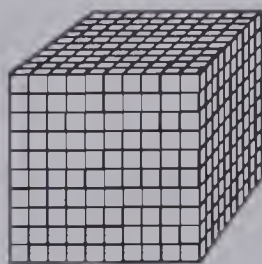
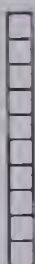
(a)

□ for



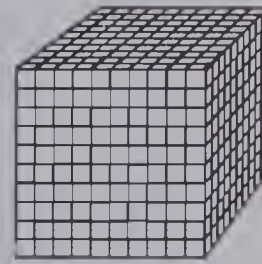
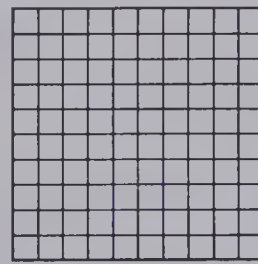
(b)

for



(c)

for



How many *hundreds* can Susan get for the following?

4. 13 tens
6. 29 tens

Hundreds	Tens left over
1	3

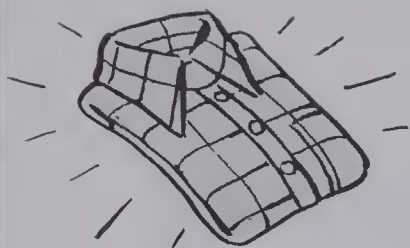
5. 20 tens
7. 57 tens

How many *thousands* can you get for the following?

8. 16 hundreds
10. 62 hundreds

Thousands	Hundreds left over
1	6

9. 38 hundreds
11. 40 hundreds



# The Great Shirt Sale



Brenda uses a *short form*.

968 shirts sold in the first week.

456 shirts sold in the second week.

How many shirts sold altogether?

Add ones.	Add tens.	Add hundreds.
$\begin{array}{r} 1 \\ 968 \\ + 456 \\ \hline 4 \end{array}$	$\begin{array}{r} 1 \quad 1 \\ 968 \\ + 456 \\ \hline 24 \end{array}$	$\begin{array}{r} 1 \quad 1 \\ 968 \\ + 456 \\ \hline 1424 \end{array}$

There were 1424 shirts sold altogether.

## Exercises

1. Add, using the short form.

(a) 
$$\begin{array}{r} 827 \\ + 388 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 968 \\ + 579 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 265 \\ + 186 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 727 \\ + 895 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} 648 \\ + 546 \\ \hline \end{array}$$

(f) 
$$\begin{array}{r} 805 \\ + 688 \\ \hline \end{array}$$

(g) 
$$\begin{array}{r} 573 \\ + 567 \\ \hline \end{array}$$

(h) 
$$\begin{array}{r} 615 \\ + 685 \\ \hline \end{array}$$

(i) 
$$\begin{array}{r} 725 \\ + 492 \\ \hline \end{array}$$

(j) 
$$\begin{array}{r} 805 \\ + 999 \\ \hline \end{array}$$

2. Ann is adding thousands. Help her finish.

Add ones.

$$\begin{array}{r} 1 \\ 2685 \\ + 1936 \\ \hline 1 \end{array}$$

Add tens.

$$\begin{array}{r} 1 \quad 1 \\ 2685 \\ + 1936 \\ \hline 21 \end{array}$$

Add hundreds.

$$\begin{array}{r} 1 \quad 1 \quad 1 \\ 2685 \\ + 1936 \\ \hline 621 \end{array}$$

Add thousands.

$$\begin{array}{r} 1 \quad 1 \quad 1 \\ 2685 \\ + 1936 \\ \hline ?621 \end{array}$$

3. (a) 
$$\begin{array}{r} 3657 \\ + 2785 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 4738 \\ + 3455 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 6291 \\ + 2659 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 5547 \\ + 2786 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} 2356 \\ + 662 \\ \hline \end{array}$$



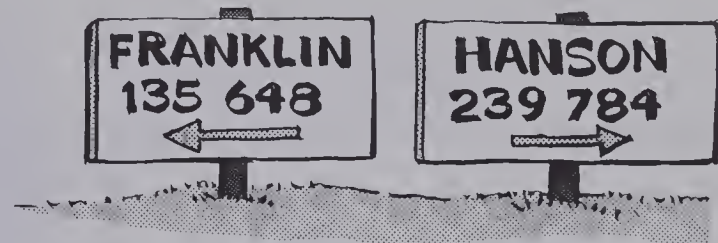
# Twin Cities

Franklin and Hanson are twin cities.

What is the total population?

Use the short form to add.

$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1\phantom{0} \\ 135\,648 \\ + 239\,784 \\ \hline 375\,432 \end{array}$$



The total population is 375 432.

hundred thousands	ten thousands	thousands	hundreds	tens	ones
3	7	5	4	3	2

Meaning:

3 hundred thousands, 7 ten thousands, 5 thousands, 4 hundreds, 3 tens, 2 ones.

## Exercises

Add to find the total population in these twin cities.

1. Walker 27 058  
Belmont 38 173

2. Melrose 135 217  
Rockville 229 845

3. Westwood 216 304  
Fenton 319 424

4. Greenwood 47 065  
Fairbury 435 296

5. 23 406  
+ 37 219  
\_\_\_\_\_

6. 350 497  
+ 24 831  
\_\_\_\_\_

7. 42 504  
+ 21 910  
\_\_\_\_\_

8. 435 481  
+ 30 842  
\_\_\_\_\_

9. 61 420  
+ 29 832  
\_\_\_\_\_

10. 740 521  
+ 237 891  
\_\_\_\_\_

11. 27 651  
+ 10 862  
\_\_\_\_\_

12. 547 197  
+ 238 045  
\_\_\_\_\_

13. What is the value of each digit?

(a) 354 672

(b) 178 235

(c) 821 034

(d) 594 071

# Zoo Keeper

Day	Number of Visitors
Monday	1286
Tuesday	1267
Wednesday	2908
Thursday	2784
Friday	2687
Saturday	3565



- What day had the least number of visitors?
  - What day had the greatest number of visitors?
- How many visitors altogether?

  - on Monday and Wednesday
  - on Wednesday and Friday
  - on Tuesday and Saturday
  - on Thursday and Friday
- Popcorn sales*

463 boxes on Thursday.  
389 boxes on Friday.  
How many boxes of popcorn altogether?
- Soft-drink sales*

368 soft drinks on Friday.  
537 soft drinks on Saturday.  
How many soft drinks altogether?
- Animal feed*

1765 kg of feed on Tuesday.  
1847 kg of feed on Friday.  
How many kilograms altogether?
- Polar-bear pool*

2307 L of clean water on Wednesday.  
2897 L of clean water on Saturday.  
How many litres of clean water altogether?

# Home Show

Peggy recorded the attendance for the Masonville Home Show.

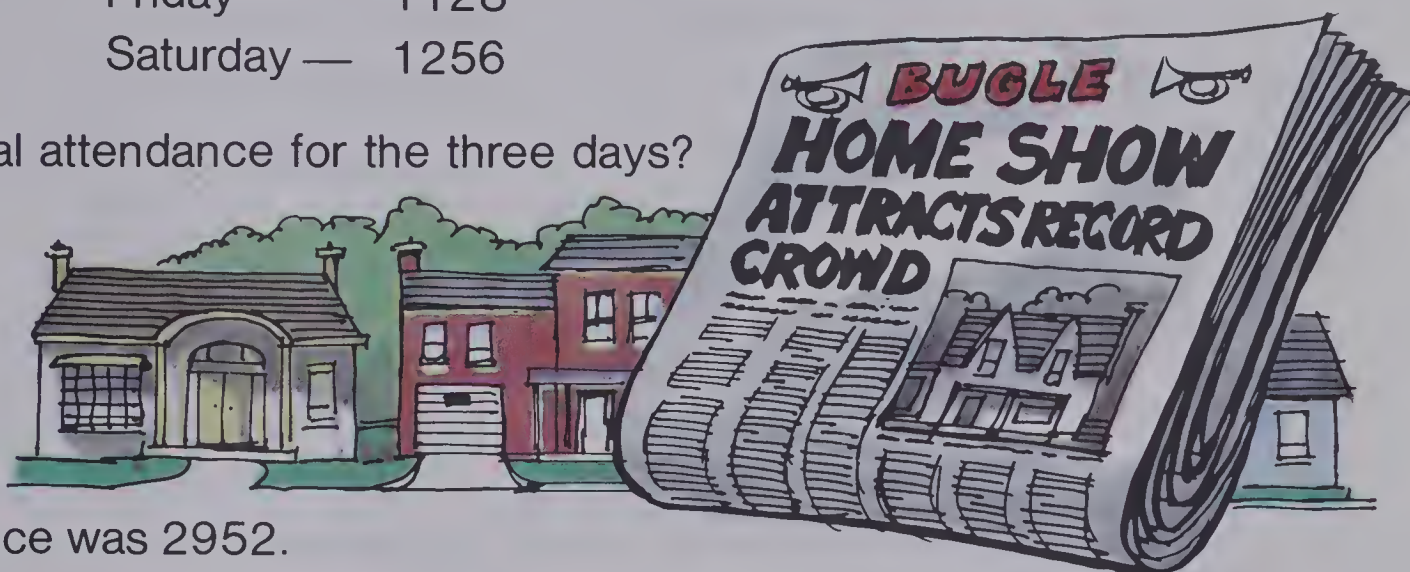
Thursday — 568

Friday — 1128

Saturday — 1256

What was the total attendance for the three days?

$$\begin{array}{r} \text{Add:} \quad \begin{array}{r} \phantom{0}1\phantom{0}2 \\ 568 \\ 1128 \\ + 1256 \\ \hline 2952 \end{array} \end{array}$$



The total attendance was 2952.

## Exercises

Add these attendance numbers.

1. 
$$\begin{array}{r} 1024 \\ 957 \\ + 2370 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 251 \\ 3098 \\ + 1473 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 51\,204 \\ 2\,911 \\ + 1\,877 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 418 \\ 3710 \\ + 2109 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 2443 \\ 518 \\ + 1679 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 235\,104 \\ 11\,632 \\ + 9\,834 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 24\,010 \\ 241\,495 \\ + 12\,918 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 595 \\ 218 \\ + 1362 \\ \hline \end{array}$$



# Gone Fishing



5264 fish in Walpur's Lake.

3628 fish in Shallow Lake.

How many more fish in Walpur's Lake?

$$\begin{array}{r} 5264 \\ - 3628 \\ \hline \end{array}$$

(a) Rename if necessary and subtract ones.

$$\begin{array}{r} \phantom{0}^5 \phantom{0}^{14} \\ 52\cancel{6}\cancel{4} \\ - 3628 \\ \hline \phantom{0}6 \end{array}$$

(b) Rename if necessary and subtract tens.

$$\begin{array}{r} \phantom{0}^5 \phantom{0}^{14} \\ 52\cancel{6}\cancel{4} \\ - 36\cancel{2}8 \\ \hline \phantom{0}36 \end{array}$$

(c) Rename if necessary and subtract hundreds.

$$\begin{array}{r} \phantom{0}^4 \phantom{0}^{12} \phantom{0}^5 \phantom{0}^{14} \\ \cancel{5}\cancel{2}\cancel{6}\cancel{4} \\ - 3\cancel{6}28 \\ \hline \phantom{0}636 \end{array}$$

(d) Subtract thousands.

$$\begin{array}{r} \phantom{0}^4 \phantom{0}^{12} \phantom{0}^5 \phantom{0}^{14} \\ \cancel{5}\cancel{2}\cancel{6}\cancel{4} \\ - \cancel{3}628 \\ \hline \phantom{0}1636 \end{array}$$

There are 1636 more fish in Walpur's Lake.

## Exercises

1. 
$$\begin{array}{r} 6528 \\ - 2164 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 7256 \\ - 3524 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 5843 \\ - 2266 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 4262 \\ - 3471 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 8655 \\ - 4221 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 8650 \\ - 4221 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 6420 \\ - 3502 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 9520 \\ - 132 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 3160 \\ - 1111 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 6803 \\ - 212 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 3805 \\ - 964 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 4203 \\ - 2076 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 9502 \\ - 4603 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 7058 \\ - 5117 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 4043 \\ - 1760 \\ \hline \end{array}$$

16. 
$$\begin{array}{r} 8072 \\ - 5094 \\ \hline \end{array}$$

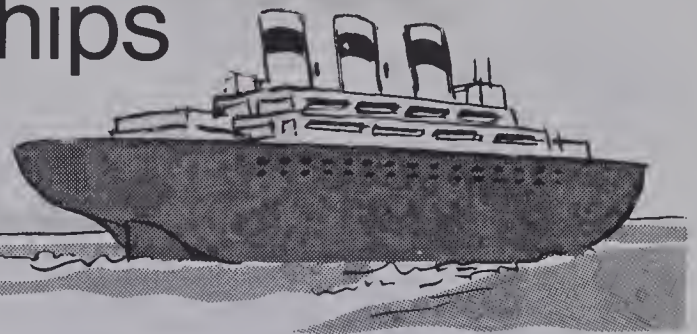
17. 
$$\begin{array}{r} 3044 \\ - 145 \\ \hline \end{array}$$

18. 
$$\begin{array}{r} 3004 \\ - 2287 \\ \hline \end{array}$$

19. 
$$\begin{array}{r} 7500 \\ - 5312 \\ \hline \end{array}$$

20. 
$$\begin{array}{r} 9006 \\ - 734 \\ \hline \end{array}$$

# Passenger Ships



Terry likes ships.

He discovered that:

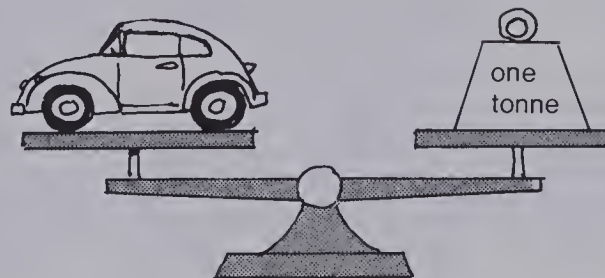
The Queen Elizabeth II has a mass of about 66 852 tonnes.

The Michelangelo has a mass of about 45 965 tonnes.

How much heavier is the Queen Elizabeth II?

Terry uses the *short form* to subtract.

$$\begin{array}{r}
 \text{1714} \\
 \text{5} \text{ } \cancel{\text{7}} \text{ } \cancel{\text{4}} \text{ } \text{12} \\
 \cancel{66} \cancel{85} \cancel{2} \\
 - 45\,965 \\
 \hline
 20\,887
 \end{array}$$



The Queen Elizabeth is 20 887 tonnes heavier than the Michelangelo.

## Exercises

Subtract to find out more about these ships.

- |             |        |           |        |                |        |
|-------------|--------|-----------|--------|----------------|--------|
| 1. Canberra | 44 817 | 2. France | 66 348 | 3. Raffaello   | 45 933 |
| Rotterdam   | 37 783 | Victory   | 48 562 | Windsor Castle | 36 477 |

Subtract.

$$\begin{array}{r}
 \text{4. } 27\,248 \\
 - 18\,713 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{5. } 52\,617 \\
 - 25\,132 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{6. } 67\,091 \\
 - 42\,427 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{7. } 50\,418 \\
 - 16\,249 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{8. } 219\,480 \\
 - 112\,726 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{9. } 424\,855 \\
 - 319\,265 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{10. } 537\,821 \\
 - 23\,042 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{11. } 944\,112 \\
 - 418\,112 \\
 \hline
 \end{array}$$

# Tune Up

Add.

$$\begin{array}{r} 1. \quad 265 \\ + 352 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 314 \\ + 429 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 560 \\ + 274 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 476 \\ + 309 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 4375 \\ + 2852 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 6528 \\ + 1719 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 456 \\ + 3097 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5370 \\ + 2861 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 27\,056 \\ + 38\,168 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 30\,875 \\ + 6\,797 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 49\,620 \\ + 32\,095 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 642\,968 \\ + 220\,553 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 13. \quad 428 \\ - 209 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 652 \\ - 317 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 735 \\ - 272 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 407 \\ - 36 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 8241 \\ - 3628 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 5042 \\ - 761 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 4730 \\ - 1815 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 6308 \\ - 4572 \\ \hline \end{array}$$

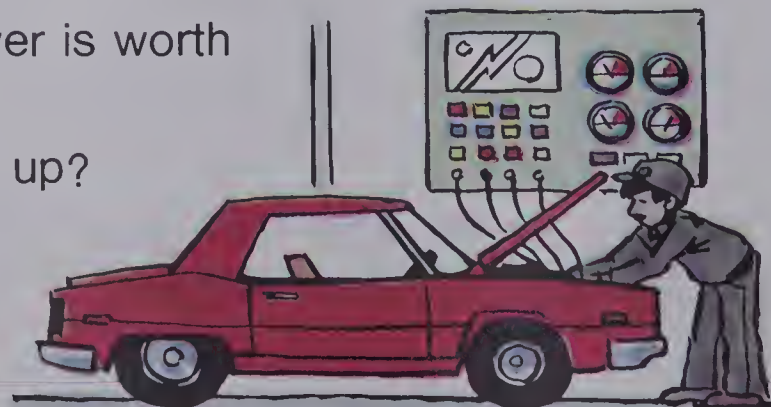
$$\begin{array}{r} 21. \quad 37\,251 \\ - 12\,573 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 72\,843 \\ - 37\,251 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 58\,310 \\ - 40\,652 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 542\,618 \\ - 219\,733 \\ \hline \end{array}$$

Each correct answer is worth  
1 "tune up" point.  
How was your tune up?



## Tune Up Score Card

Points	Mechanic's Report
24-22	Excellent tune up!
21-19	Very good tune up!
18-17	Good tune up!
16-15	Fair tune up!
14-less	Time out for repairs



# The Fulton Island Ferry

1. The Fulton Island Ferry carried 2456 passengers in one week.  
It carried 2839 passengers in another week.  
How many passengers altogether?

2. The ferry can carry cars.

Monday: 6 cars

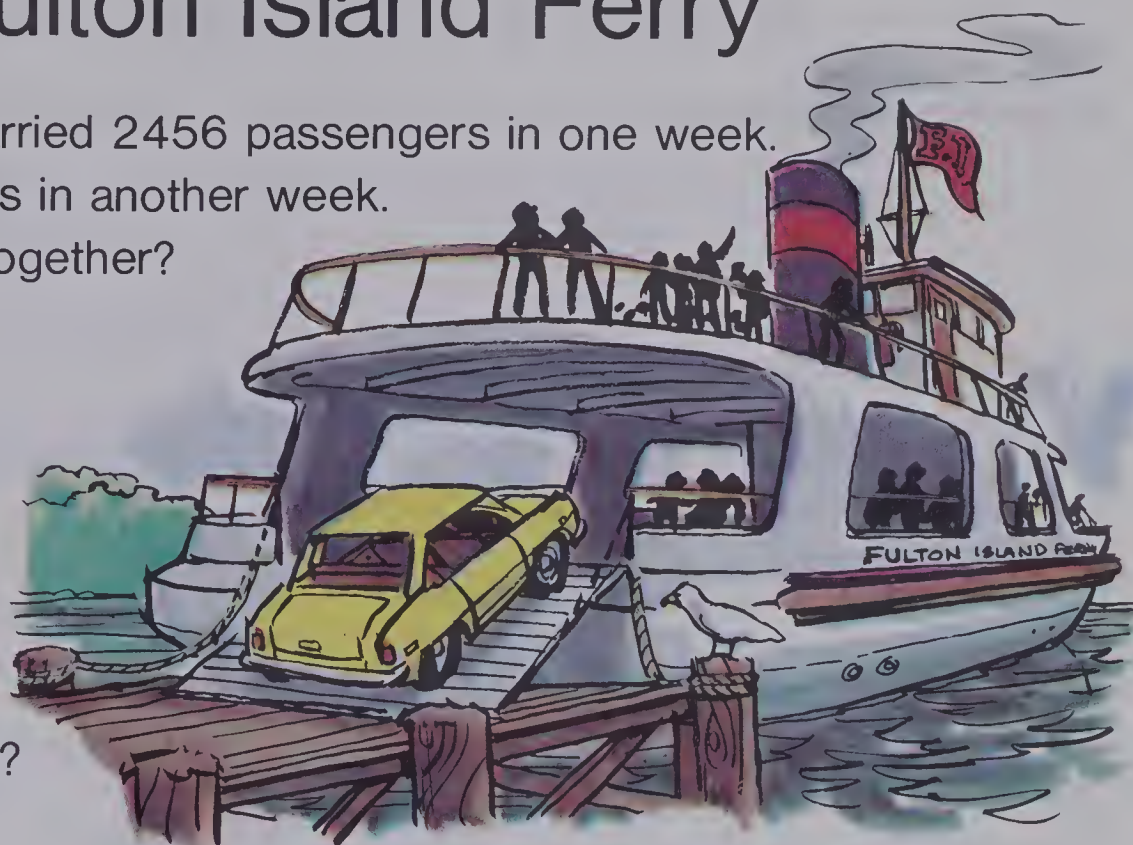
Tuesday: 2 cars

Wednesday: 5 cars

Thursday: 4 cars

Friday: 8 cars

How many cars altogether?



3. The ferry has room for 286 people on the upper deck and for 305 on the lower deck.

How many more people can the lower deck hold?

4. The ferry carries mail.

In June it carried 3043 letters and 1678 letters in July.

How many more letters were carried in June than July?

5. The Fulton Island Ferry carries 348 life preservers on the lower deck and 316 on the upper deck.

How many life preservers are there altogether?

6. Some passengers bring their own bicycles.

The bow of the boat can hold 120 bicycles and the stern can hold 58 bicycles.

How many more will the bow hold than the stern?

# Vice-Versa Numbers

**Vice-versa numbers** read the same forward and backward.

646

53 135

- (a) Select any number.  
(b) Reverse the digits, then add.

$$\begin{array}{r} 67 \\ + 76 \\ \hline 143 \\ + 341 \\ \hline 484 \end{array}$$

Repeat Step (b) until a vice-versa number appears!

A vice-versa number is a **palindrome**.

Words like this are palindromes:

level

Use these to make vice-versa numbers.

1. 123                      2. 47                      3. 146                      4. 259
5. How many steps to make 87 a vice-versa number?
6. Try other numbers.



## Silly 99 – BRAINTICKLER

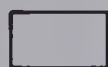
Reverse and subtract, then reverse and add!  
99 will appear to make you glad!

Try these.

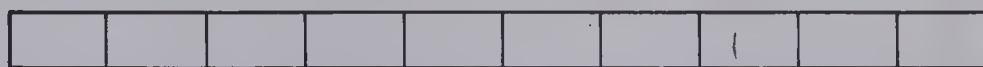
1. 61                      2. 52                      3. 92                      4. 64                      5. 86
6. 51                      7. 82                      8. 53                      9. 41                      10. 74

$$\begin{array}{r} 53 \\ - 35 \\ \hline 18 \\ + 81 \\ \hline 99 \end{array}$$

# Centimetre and Decimetre



1 cm



1 dm

Estimate each length to the nearest centimetre. Check.

1.



2.



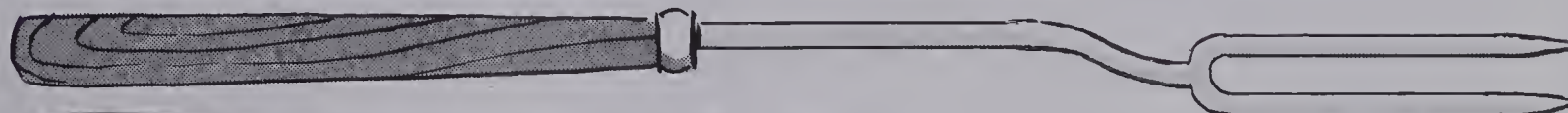
3.



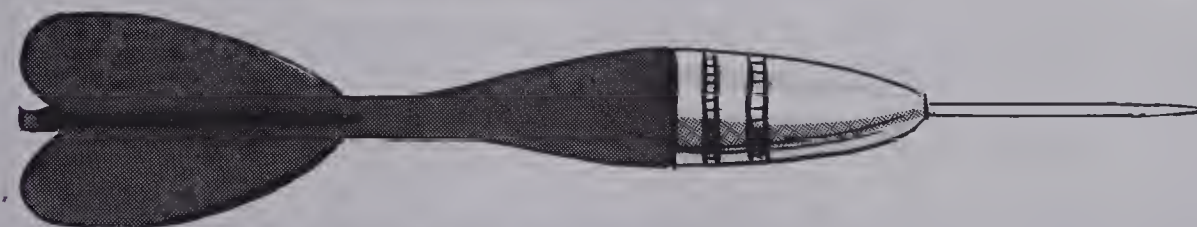
4.



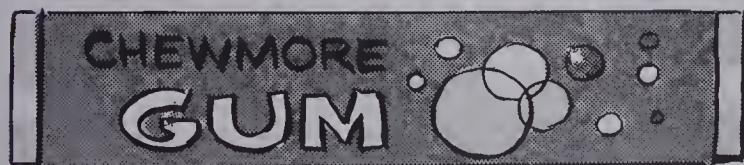
5.



6.



7.



Estimate the length of each to the nearest decimetre. Check.

8. length of your shoe

9. your arm

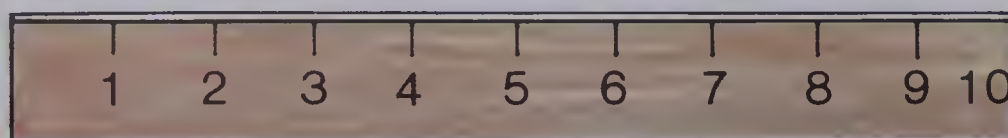
10. your height

11. your handspan



# Decimetre and Metre

A **decimetre** is ten centimetres.



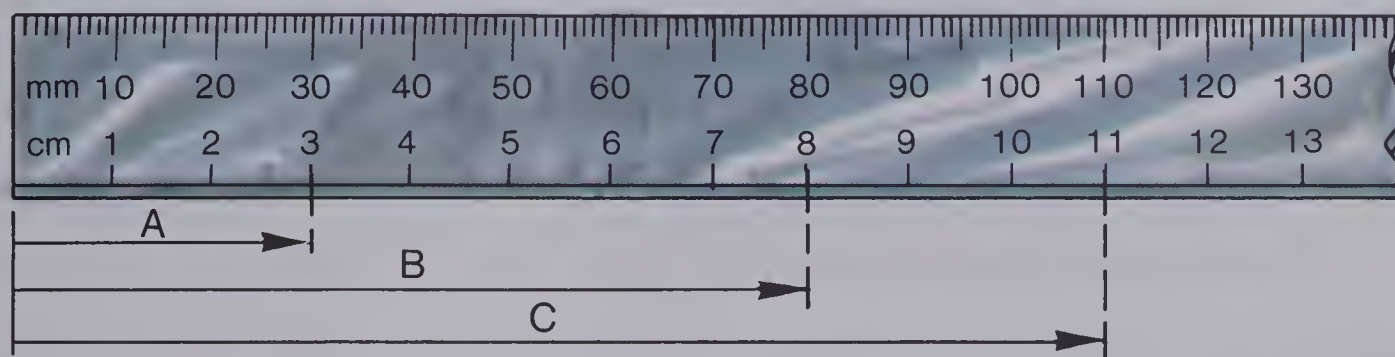
$$1 \text{ dm} = 10 \text{ cm}$$

$$1 \text{ m} = 10 \text{ dm}$$

1. Make a cord 10 dm long.  
Is it the same length as the cord on this page?  
The cord is **one metre** long.
2. Estimate the length of each to the nearest decimetre. Check.  
(a) tip of middle finger to elbow                      (b) heel to knee  
(c) width of one window
3. Find and measure things about:  
(a) 1 dm              (b) 2 dm              (c) 5 dm              (d) 7 dm              (e) 10 dm
4. Is one metre as long as your arm? as long as two arms?
5. How many decimetres in a metre?  
A metre is how many times longer than a decimetre?  
Use the 1 m cord. Find 5 things that have a measure of about 1 m.
6. Estimate the length of each to the nearest metre. Check.  
(a) width of your classroom                      (b) width of a door  
(c) height of ceiling

# Millimetres

One centimetre is equal to ten millimetres. (1 cm = 10 mm)



Arrow A is 30 mm long.

30 mm is 3 cm.

## Exercises

1. Write the lengths of the arrows two ways.
2. Is a length of 85 mm longer or shorter than 9 cm?  
Is a length of 121 mm longer or shorter than 12 cm?
3. Name 5 things about 1 mm wide.
4. Name 5 things about 10 mm wide.
5. Measure the length of this page in millimetres; in centimetres.
6. Measure each segment in millimetres.  
Then measure in centimetres.

(a) \_\_\_\_\_

(b) \_\_\_\_\_

(c) \_\_\_\_\_

(d) \_\_\_\_\_

(e) \_\_\_\_\_

# Millimetres, Centimetres, Decimetres

A metre contains ...

... ten decimetres	10 dm
... one hundred centimetres	100 cm
... one thousand millimetres	1000 mm

## Exercises

1. Use your metre cord.  
How many times will it go around your waist?
2. Is your cord marked in decimetres? If not, mark it.  
How many decimetres in one metre?

■ dm = 1 m

3. Mark one decimetre of your cord with centimetres.

■ cm = 1 dm

■ cm = 5 dm

■ cm = 2 dm

■ cm = 10 dm

■ cm = 3 dm

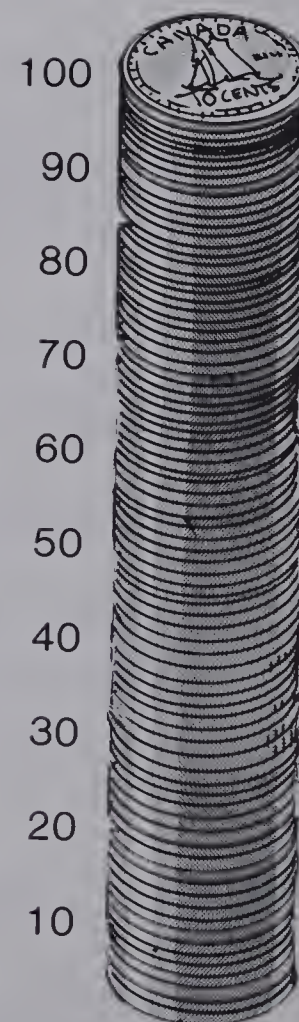
■ cm = 1 m

4. Mark one centimetre of your cord with millimetres.

■ mm = 1 cm

■ mm = 1 m

5. A dime is about 1 mm thick.  
How tall is a stack of 10 dimes?  
How tall is a stack of 100 dimes?  
How tall is a stack of 1000 dimes?





# Kilometre

Long distances are measured in kilometres.

Some distances that may be measured in kilometres are:

From your home to school

Across town

To your holiday resort

Across Canada

Between cities of Canada

Between cities of the world

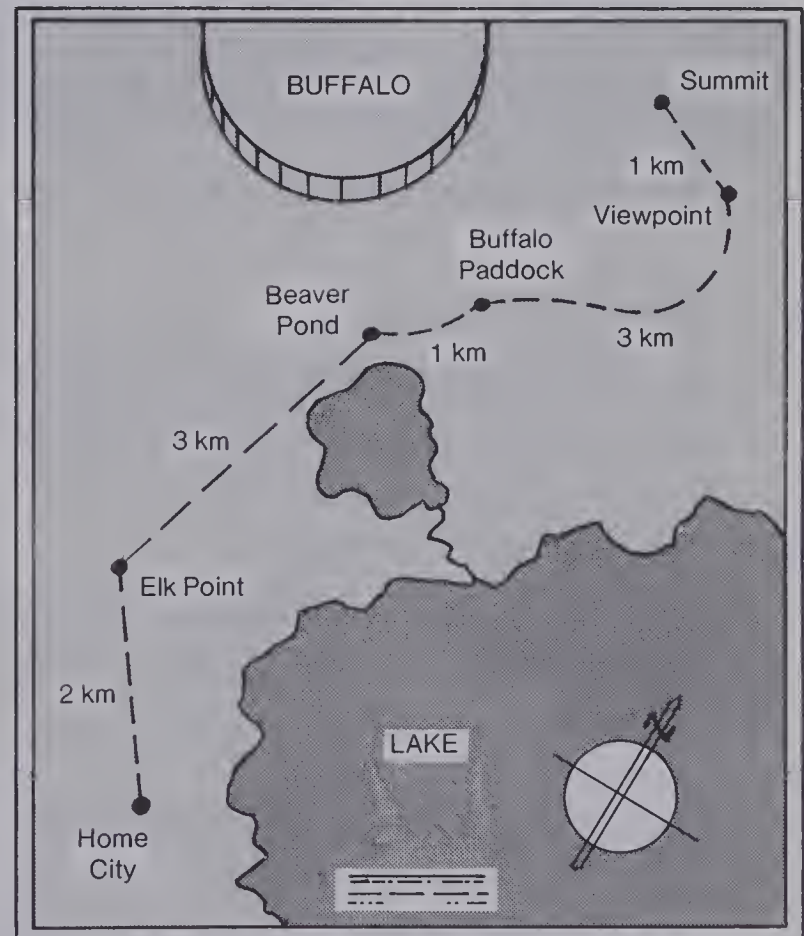
Mike and Trudy cut a cord 100 m long.

10 of these are the same length as a **kilometre** (km).

## Exercises

This map shows distances in kilometres.

1. A Guide Pack started on a hike from Home City.  
They hiked to Beaver Pond by noon.  
How far did they hike by noon?
2. Then they hiked to Viewpoint.  
How far were they from Home City?
3. How far is it from Beaver Pond to Viewpoint?
4. Then they hiked from Viewpoint to Summit.  
How far is it from Viewpoint to Summit?
5. Name in order all the places the girls passed in going from Home City to Summit.



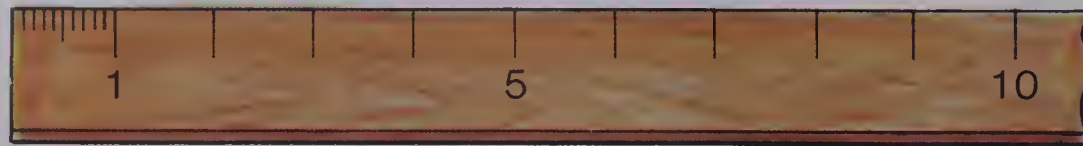
# Lengths

$10 \text{ mm} = 1 \text{ cm}$

$10 \text{ cm} = 1 \text{ dm}$

$10 \text{ dm} = 1 \text{ m}$

$100 \text{ cm} = 1 \text{ m}$

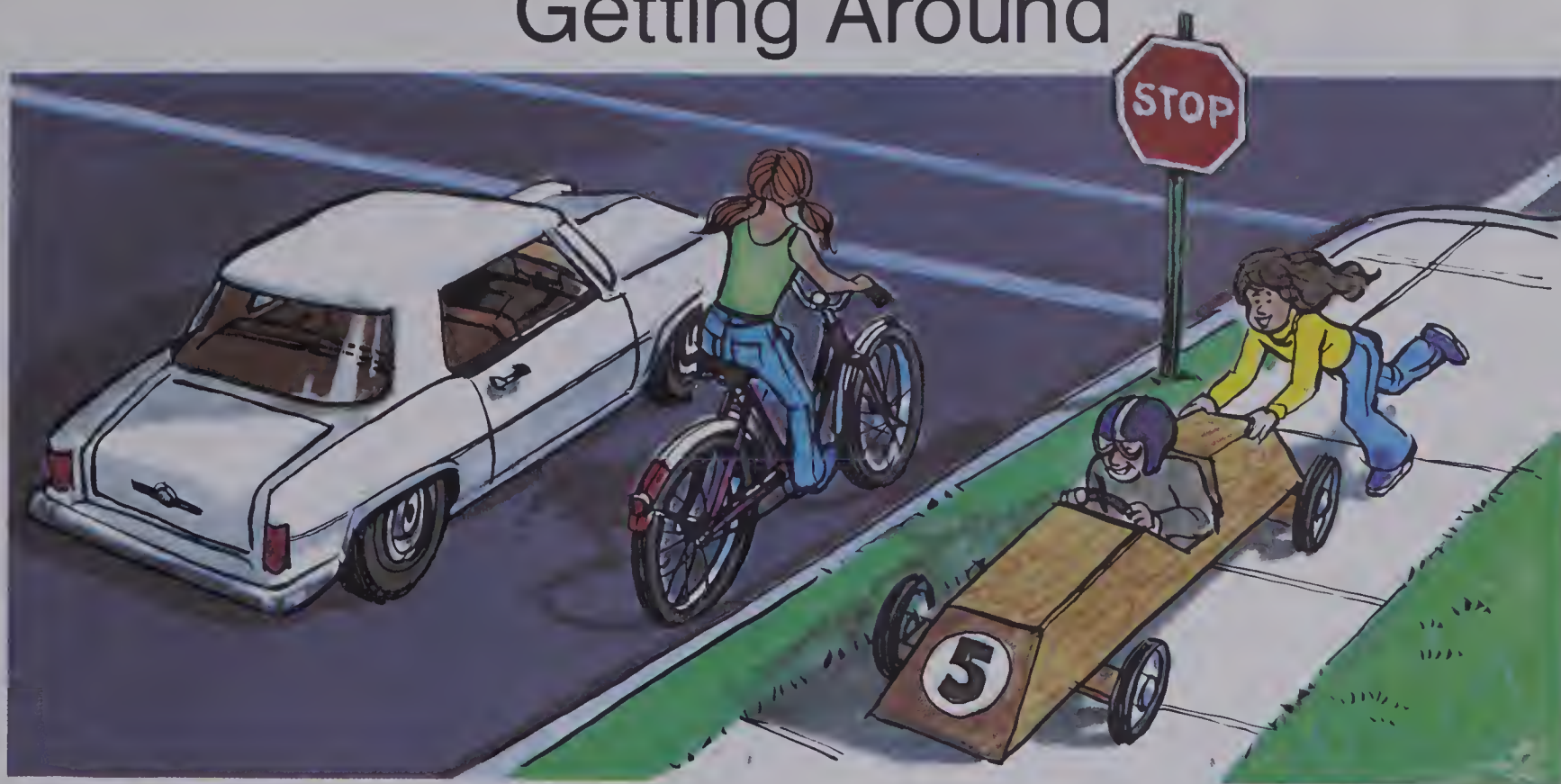


## Exercises

1. Draw a line 1 m long.
  - (a) How many centimetres in 1 m?  $1 \text{ m} = \blacksquare \text{ cm}$
  - (b) How many decimetres in 1 m?  $1 \text{ m} = \blacksquare \text{ dm}$
2. Draw a line 2 m long.
  - (a) How many centimetres in 2 m?  $2 \text{ m} = \blacksquare \text{ cm}$
  - (b) How many decimetres in 2 m?  $2 \text{ m} = \blacksquare \text{ dm}$
3. Draw a line 3 m long.
  - (a) How many centimetres in 3 m?  $3 \text{ m} = \blacksquare \text{ cm}$
  - (b) How many decimetres in 3 m?  $3 \text{ m} = \blacksquare \text{ dm}$
4. Draw a line 2 dm long.
  - (a) How many centimetres in 2 dm?  $2 \text{ dm} = \blacksquare \text{ cm}$
  - (b) How many millimetres in 2 dm?  $2 \text{ dm} = \blacksquare \text{ mm}$
5. Draw a line 3 cm long.  
How many millimetres in 3 cm?  $3 \text{ cm} = \blacksquare \text{ mm}$
6.
 

$1 \text{ cm} = \blacksquare \text{ mm}$	$1 \text{ dm} = \blacksquare \text{ cm}$	$1 \text{ m} = \blacksquare \text{ cm}$
$10 \text{ cm} = \blacksquare \text{ mm}$	$10 \text{ dm} = \blacksquare \text{ cm}$	$10 \text{ m} = \blacksquare \text{ cm}$
$20 \text{ cm} = \blacksquare \text{ mm}$	$20 \text{ dm} = \blacksquare \text{ cm}$	$20 \text{ m} = \blacksquare \text{ cm}$

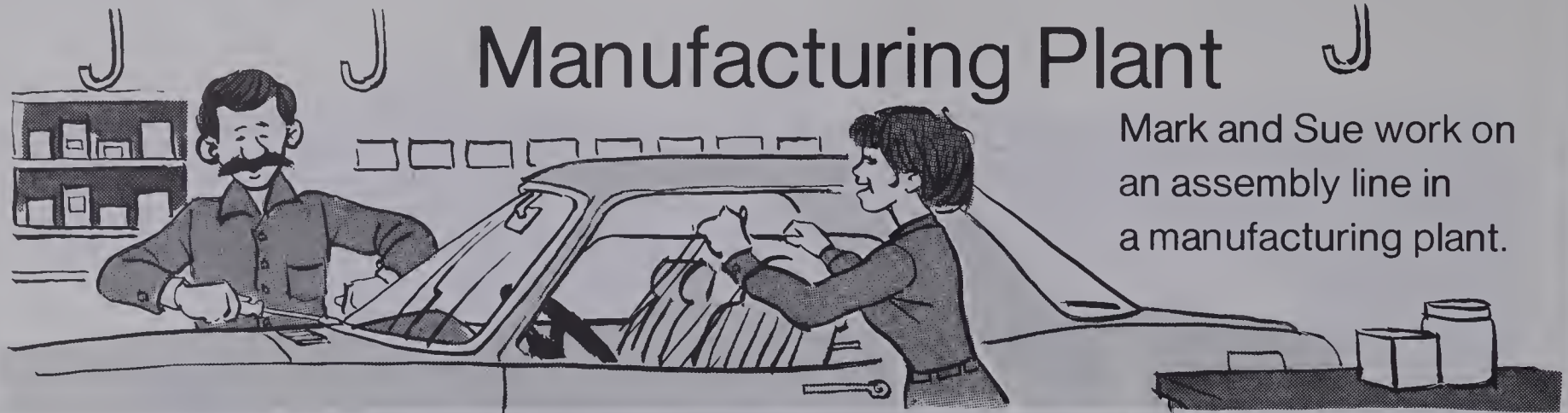
# Getting Around



Write a number sentence to solve each problem.

1. Mary's bicycle is 96 cm tall.  
Jill's bicycle is 87 cm tall.  
How much taller is Mary's bicycle?
2. Mary rode her bicycle 11 km.  
Jill rode her bicycle 18 km.  
How far did they ride altogether?
3. Kim's wheels are 28 mm wide.  
Max's wheels are 42 mm wide.  
How much wider are Max's wheels?
4. Jose's race car is 135 cm long.  
Nina's race car is 150 cm long.  
How long are the two cars together?
5. Jose wants red trim on his car.  
Jose needs 11 m of red trim.  
He has 7 m of red trim.  
How much more does he need?
6. Mary lives 22 km from Appleville.  
She lives 31 km from Orangeville.  
How much closer is Appleville?





# Manufacturing Plant

Mark and Sue work on an assembly line in a manufacturing plant.

## Exercises

1. A worker must know the metric system.

■ mm = 1 cm

■ cm = 1 m

■ cm = 1 dm

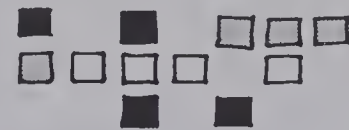
■ m = 1 km

2. Mark puts trim on a car.  
One strip is 45 cm long.  
Another strip is 15 cm long.  
Another is 40 cm long.  
How long are the 3 altogether?
3. Sue puts windows in doors.  
The first is 875 mm long.  
The second is 698 mm long.  
How much longer is the first window?
4. Sue bolts in the battery.  
One bolt is 12 cm long.  
Another bolt is 128 mm long.  
Which is the longer bolt?
5. Mark puts bolts in doors.  
One bolt is 28 cm long.  
Another bolt is 289 mm long.  
Which bolt is longer?

Choose the best unit.

- |                   |                            |                    |
|-------------------|----------------------------|--------------------|
| 6. Width of a car | 7. Length of a door handle | 8. Width of a tire |
| (a) 2 mm          | (a) 10 mm                  | (a) 14 mm          |
| (b) 2 cm          | (b) 10 cm                  | (b) 14 cm          |
| (c) 2 dm          | (c) 10 dm                  | (c) 14 dm          |
| (d) 2 m           | (d) 10 m                   | (d) 14 m           |

# Tune Up



Add.

$$\begin{array}{r} 1. \quad 1 \\ 3 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 3 \\ 9 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 8 \\ 1 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 7 \\ 2 \\ 6 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 8 \\ 4 \\ 6 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 9 \\ 8 \\ 1 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 26 \\ + 13 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 36 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 108 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 661 \\ + 239 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 206 \\ + 407 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 5310 \\ + 2263 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 1769 \\ + 2053 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 23470 \\ + 16599 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 30306 \\ + 33060 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 16. \quad 87 \\ - 66 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 60 \\ - 32 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 878 \\ - 869 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 900 \\ - 92 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 806 \\ - 28 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 3458 \\ - 1236 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 3000 \\ - 1982 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 6060 \\ - 771 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 20504 \\ - 10608 \\ \hline \end{array}$$

Tune Up Score Card

Points	Mechanic's Report
24-22	Excellent tune up!
21-19	Very good tune up!
18-17	Good tune up!
16-15	Fair tune up!
14-less	Time out for repairs

1 mark for each correct answer.  
How was your tune up?

# Roman Numerals

The Romans used different numerals from ours.

Roman	I	V	X	L	C
Ours	1	5	10	50	100



How many swords?

Roman	x	I	I
Ours	10	+	1 + 1

XII swords

How many horses?

Roman	C	L	X	V
Ours	100 + 50 + 10 + 5			

CLXV horses

## Exercises

1. Rewrite using our numerals.

(a) XV

(b) VIII

(c) II

(d) CL

(e) XVI

(f) XXX

(g) VI

(h) LXXI

(i) CLXVIII

(j) CII

For special numerals, the Romans used subtraction.

$$IV = 5 - 1 \text{ (or 4)}$$

$$XL = 50 - 10 \text{ (or 40)}$$

C	XL	IX
149 = 100 + 40 + 9 = CXLIX		

2. Rewrite using our numerals.

(a) IX

(b) XC

(c) LIX

(d) XXXIX

(e) XCIX

(f) CXLII

(g) LXXIV

(h) XLIV

(i) XLIII

(j) CCXXIV



3. Rewrite using Roman numerals.

- (a) 37
- (b) 49
- (c) 129
- (d) 355
- (e) 148
- (f) 204
- (g) 85
- (h) 164
- (i) 111
- (j) 394

4. The Emperor had a secret storeroom.  
Use our numerals to tell how many of each thing he had!

- XXIV jars of oil
- XXXV spears
- XL pairs of sandals
- LXI robes
- XLVIII jars of grain
- XXIX swords
- IX chests of coins
- XVIII bridles

5. Find the answer to the question by writing our numerals for the Roman ones.  
Then use the code. (The first numeral is done for you.)

Why was the Emperor so hard to find?

Ours	Roman	Code
49	XLIX	E
	LXIII	A
	XXV	R
	IX	O
	LVII	N
	CV	T
	LXXII	H



Ours	Roman	Code
	XVIII	U
	LXXXIII	L
	XXXIV	M
	CXXVI	C
	LI	D
	LXXVIII	P

The Emperor was always

25	9	34	63	57
----	---	----	----	----

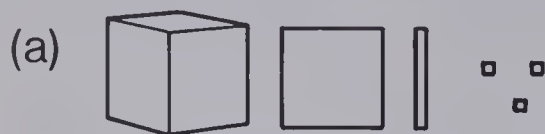
63	25	9	18	57	51
----	----	---	----	----	----

		E
105	72	49

					E	
78	63	83	63	126	49	!

# Chapter Test

1. Write a numeral for each.



(b) CLXIII

(c) three thousand, two hundred ninety-four

(d) six thousand, five hundred seven

2. Compare. Use  $>$ ,  $=$ , or  $<$ .

(a) 5367  $\bullet$  4989

(b) 680  $\bullet$  684

(c) 5000  $\bullet$  5100

3. Add.

$$\begin{array}{r} 3415 \\ + 6749 \\ \hline \end{array}$$

$$\begin{array}{r} 23\,915 \\ + 38\,227 \\ \hline \end{array}$$

4. Subtract.

$$\begin{array}{r} 8761 \\ - 4120 \\ \hline \end{array}$$

$$\begin{array}{r} 71\,010 \\ - 52\,839 \\ \hline \end{array}$$

5. Which is longer?

(a) 3 cm or 20 mm

(b) 2 m or 500 cm

6. Use a ruler. Draw lines:

(a) 25 mm long

(b) 7 cm long

7. Complete.

(a) 10 mm =  $\blacksquare$  cm

(b) 1 km =  $\blacksquare$  m

(c)  $\blacksquare$  mm = 1 m

8. Estimate the length in centimetres.

(a) \_\_\_\_\_

(b) \_\_\_\_\_

9. Three Scouts ran a relay race.

One ran 550 m, another ran 740 m, and the third ran 810 m.  
How far did they run altogether?

10. Nadine's pencil was 10 cm long.

How many millimetres long was it?

# Cumulative Review

1.  $83 = \blacksquare$  tens and  $\blacksquare$  ones

2. Complete.

9th,  $\blacksquare$ ,  $\blacksquare$ ,  $\blacksquare$ .

3. Compare. Use  $>$ ,  $=$ , or  $<$ .

(a)  $65 \bullet 73$

(b)  $508 \bullet 439$

(c)  $5387 \bullet 6241$

4. Give the meaning of the red digit.

(a)  $7\textcolor{red}{8}31$

(b)  $\textcolor{red}{4}381$

(c)  $15\textcolor{red}{0}8$

5. Rewrite using our numerals. (a) VIII

(b) XII

(c) XL

6. Add.

$$\begin{array}{r} 7 \\ 2 \\ 8 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 43\,095 \\ + 26\,487 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ 8 \\ 4 \\ + 1 \\ \hline \end{array}$$

7. Subtract.

$$\begin{array}{r} 74\,583 \\ - 61\,320 \\ \hline \end{array}$$

$$\begin{array}{r} 4006 \\ - 1238 \\ \hline \end{array}$$

8. Name an object (a) about 1 m long

(b) about 5 cm long.

9. Use a ruler. Draw lines:

(a) 15 mm long

(b) 23 cm long

(c) 1 dm long.

10. Angelo bought 28 donuts.

There are 6 donuts left.

How many were eaten?

11. Agnes had 3 ribbons.

They were 55 cm, 42 cm, and 38 cm long.

How much ribbon altogether?



# Chapter 3

# Multiplication

Estimating  
Rounding



# Multiplication



4 cartons of Fizzle pop.  
6 cans in each carton.  
How many cans?

$$6 + 6 + 6 + 6 = 24 \leftarrow \text{an addition sentence}$$

$$4 \text{ groups of } 6 = 24$$

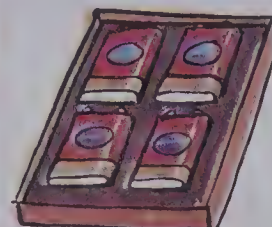
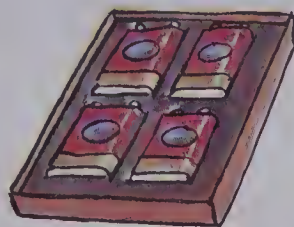
$$4 \times 6 = 24 \leftarrow \text{a multiplication sentence}$$

$$\begin{array}{r} 6 \\ \times 4 \\ \hline 24 \end{array}$$

There are 24 cans.

## Exercises

1. 3 boxes of transistor batteries.  
4 batteries in each box.  
How many batteries?



$$4 + 4 + 4 = 12 \leftarrow \text{an addition sentence}$$

$$3 \text{ groups of } 4 = 12$$

$$3 \times 4 = \blacksquare \leftarrow \text{a multiplication sentence}$$

$$\begin{array}{r} 4 \\ \times 3 \\ \hline \blacksquare \end{array}$$

There are  $\blacksquare$  batteries.

2. Write addition and multiplication sentences.  
How many pizzas?



$$\blacksquare + \blacksquare + \blacksquare = \blacksquare$$

$$\blacksquare \times \blacksquare = \blacksquare$$

There are  $\blacksquare$  pizzas.



# Multiplication and Addition

Use multiplication.

- 6 packages of light bulbs.  
2 light bulbs in each package.  
How many light bulbs?



- The parking lot is full.  
How many cars?



- Write a multiplication sentence for each addition sentence. Solve.

(a)  $2 + 2 + 2 + 2 + 2 = \blacksquare$   
 $5 \times 2 = 10$

(b)  $3 + 3 + 3 + 3 = \blacksquare$

(c)  $6 + 6 + 6 = \blacksquare$

(d)  $5 + 5 + 5 + 5 = \blacksquare$

(e)  $4 + 4 + 4 = \blacksquare$

(f)  $1 + 1 + 1 + 1 + 1 + 1 + 1 = \blacksquare$

(g)  $7 + 7 = \blacksquare$

(h)  $3 + 3 + 3 + 3 + 3 = \blacksquare$

(i)  $4 + 4 + 4 + 4 = \blacksquare$

(j)  $8 + 8 + 8 = \blacksquare$

- Write an addition sentence for each multiplication sentence.

(a)  $4 \times 3 = \blacksquare$   
 $3 + 3 + 3 + 3 = 12$

(b)  $2 \times 6 = \blacksquare$

(c)  $2 \times 5 = \blacksquare$

(d)  $5 \times 3 = \blacksquare$

(e)  $7 \times 2 = \blacksquare$

(f)  $4 \times 4 = \blacksquare$

(g)  $6 \times 3 = \blacksquare$

(h)  $3 \times 8 = \blacksquare$

(i)  $2 \times 9 = \blacksquare$

(j)  $5 \times 5 = \blacksquare$

(k)  $8 \times 1 = \blacksquare$

(l)  $3 \times 7 = \blacksquare$

(m)  $4 \times 6 = \blacksquare$

(n)  $3 \times 5 = \blacksquare$

(o)  $5 \times 4 = \blacksquare$

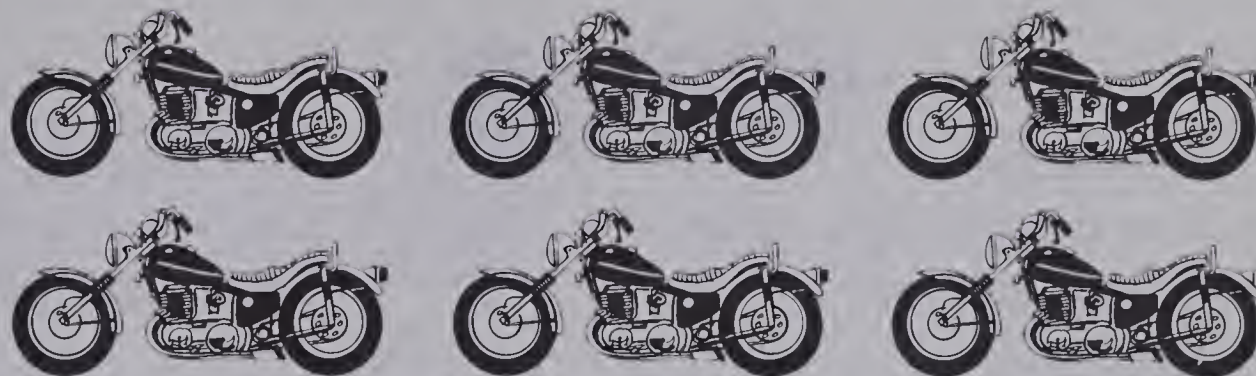


# Factors and Products

6 motorcycles.

2 wheels on each.

How many wheels?



Factor  
Factor  
Product

$$6 \times 2 = 12$$

$$\begin{array}{r} 2 \text{ Factor} \\ \times 6 \text{ Factor} \\ \hline 12 \text{ Product} \end{array}$$

Numbers multiplied together are called **factors**.

The answer is called the **product**.

## Exercises

Write the product. Draw pictures if you need them.

1.  $2 \times 4$

5.  $4 \times 4$

9.  $5 \times 7$

13.  $4 \times 6$

17.  $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$

22.  $\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$

2.  $5 \times 2$

6.  $6 \times 1$

10.  $1 \times 7$

14.  $3 \times 8$

18.  $\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$

23.  $\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$

3.  $3 \times 6$

7.  $3 \times 3$

11.  $2 \times 2$

15.  $2 \times 9$

19.  $\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$

24.  $\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$

4.  $4 \times 3$

8.  $2 \times 6$

12.  $3 \times 5$

16.  $4 \times 8$

20.  $\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$

25.  $\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$

21.  $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$

26.  $\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$

# Multiplying by 0 and 1



5 snowmobiles.

1 rider for each snowmobile.

How many riders?

$$1 + 1 + 1 + 1 + 1 = 5$$

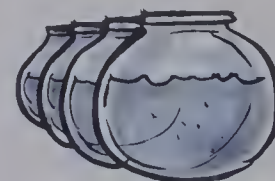
$$5 \text{ groups of } 1 = 5$$

$$5 \times 1 = \blacksquare$$

$$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$$

There are  $\blacksquare$  riders.

$\blacksquare$



4 fish bowls.

No fish in each bowl.

How many fish?

$$0 + 0 + 0 + 0 = 0$$

$$4 \text{ groups of } 0 = 0$$

$$4 \times 0 = \blacksquare$$

$$\begin{array}{r} 0 \\ \times 4 \\ \hline \end{array}$$

There are  $\blacksquare$  fish.

$\blacksquare$

## Exercises

1. What happens when 1 is one of the numbers you multiply?

(a)  $6 \times 1$

(b)  $3 \times 1$

(c)  $\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$

(d)  $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$

2. What happens when 0 is one of the numbers you multiply?

(a)  $7 \times 0$

(b)  $4 \times 0$

(c)  $\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$

(d)  $\begin{array}{r} 0 \\ \times 3 \\ \hline \end{array}$

3. Write the products.

(a)  $\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$

(b)  $\begin{array}{r} 0 \\ \times 4 \\ \hline \end{array}$

(c)  $\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$

(d)  $\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$

(e)  $\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$

(f)  $\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$

(g)  $8 \times 0$

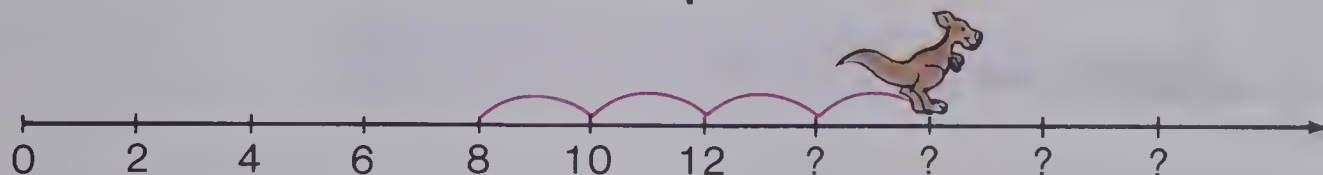
(h)  $1 \times 0$

(i)  $1 \times 1$

(j)  $0 \times 0$

# Counting

The number line shows some **multiples** of 2.



*Rule*

We add 2  
each time to  
get the next  
number.

Write the next four multiples of 2.

## Exercises

1. Continue the patterns below by giving the next seven multiples. *Rule*



2. Continue the patterns below by giving the next seven multiples. *Rule*

(a) 8, 16, 24, ■, ■, ■, ■, ■, ■, ■ Add ■.

(b) 6, 12, 18, ■, ■, ■, ■, ■, ■, ■ Add ■.

(c) 9, 18, 27, ■, ■, ■, ■, ■, ■, ■ Add ■.

(d) 7, 14, 21, ■, ■, ■, ■, ■, ■, ■ Add ■.



# Multiple Strips

1. Use multiples to help you complete these multiple strips.

(a)

$\times 2$	0	1	2	3	4	5	6	7	8	9	10
	0	2	4	6							

Multiples of ■.

(b)

$\times 3$	0	1	2	3	4	5	6	7	8	9	10
	0				12						

Multiples of ■.

(c)

$\times 4$	0	1	2	3	4	5	6	7	8	9	10
	0								32		

Multiples of ■.

(d)

$\times 5$	0	1	2	3	4	5	6	7	8	9	10
	0							35			

Multiples of ■.

(e)

$\times 6$	0	1	2	3	4	5	6	7	8	9	10
	0	6	12				36				

Multiples of ■.

2. Tell what multiples are being used in each pattern.

(a) 8, 10, 12, 14, ...

(b) 15, 20, 25, 30, ...

(c) 21, 28, 35, 42, ...

(d) 10, 20, 30, 40, ...

# Rows and Columns

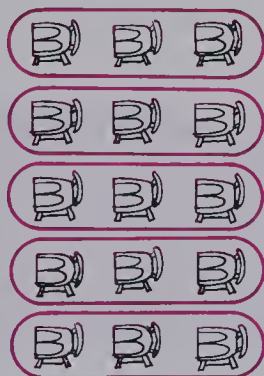
5 rows of chairs.  
3 in each row.

$$3 + 3 + 3 + 3 + 3 = 15$$

$$5 \text{ groups of } 3 = 15$$

$$5 \times 3 = 15$$

These are **rows**.



There are 15 chairs.

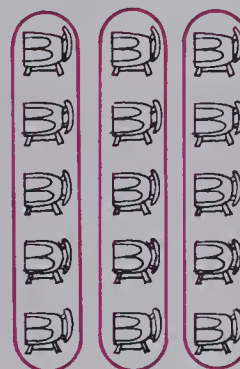
3 columns of chairs.  
5 in each column.

$$5 + 5 + 5 = 15$$

$$3 \text{ groups of } 5 = 15$$

$$3 \times 5 = 15$$

These are **columns**.

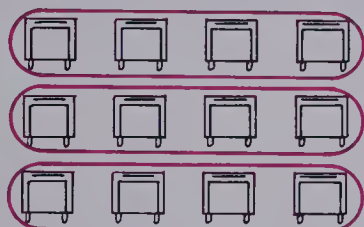


## Exercises

Draw these arrays. Show *two* ways to multiply.

Write number sentences as shown.

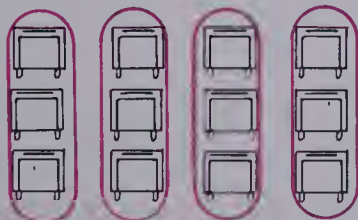
1. rows



$$4 + \blacksquare + \blacksquare = \blacksquare$$

$$3 \times \blacksquare = \blacksquare$$

columns



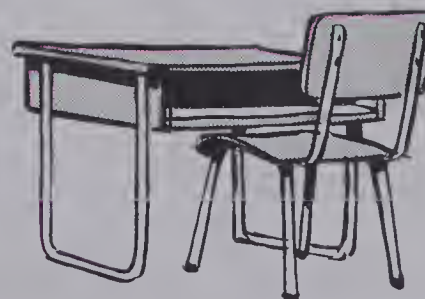
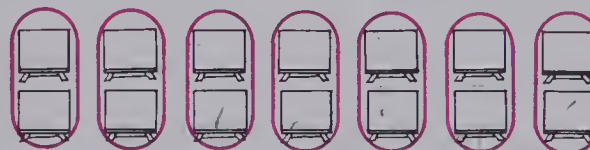
$$\blacksquare + 3 + \blacksquare + \blacksquare = \blacksquare$$

$$4 \times \blacksquare = \blacksquare$$

2. rows



columns



# The Order Principle

Find the missing **products**.

$$2 \times 6 = \blacksquare$$

$$6 \times 2 = \blacksquare$$

$$5 \times 4 = \blacksquare$$

$$4 \times 5 = \blacksquare$$

$$3 \times 6 = \blacksquare$$

$$6 \times 3 = \blacksquare$$

What did you notice about the pairs of products?

What did you notice about the pairs of factors?

The **order principle of multiplication** says:

“Changing the order of the factors  
does not change the product.”

## Exercises

Use the *order principle* to help you find the missing products.

If I know that:

1.  $1 \times 2 = 2$

2.  $2 \times 6 = 12$

3.  $4 \times 5 = 20$

4.  $3 \times 9 = 27$

5.  $4 \times 6 = 24$

6.  $8 \times 0 = 0$

7.  $5 \times 2 = 10$

8.  $3 \times 4 = 12$

Then I know:

$$2 \times 1 = \blacksquare$$

$$6 \times 2 = \blacksquare$$

$$5 \times 4 = \blacksquare$$

$$9 \times 3 = \blacksquare$$

$$6 \times 4 = \blacksquare$$

$$0 \times 8 = \blacksquare$$

$$2 \times 5 = \blacksquare$$

$$4 \times 3 = \blacksquare$$

## BRAINTICKLER

When I multiply me by myself,  
I appear in the product as the  
last digit.

$$\begin{array}{r} A \\ \times A \\ \hline BA \end{array}$$

Who am I?



# Multiplication Table

Let's put some multiplication facts together.

×	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3					12						
4				12							
5											
6											
7											
8											
9											
10											

The red row and column show  $3 \times 4 = 12$ .

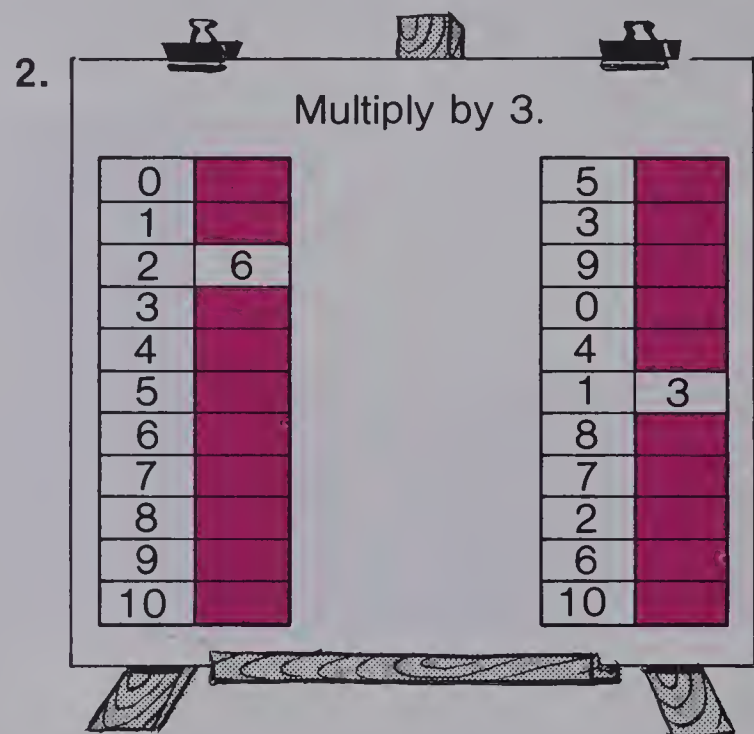
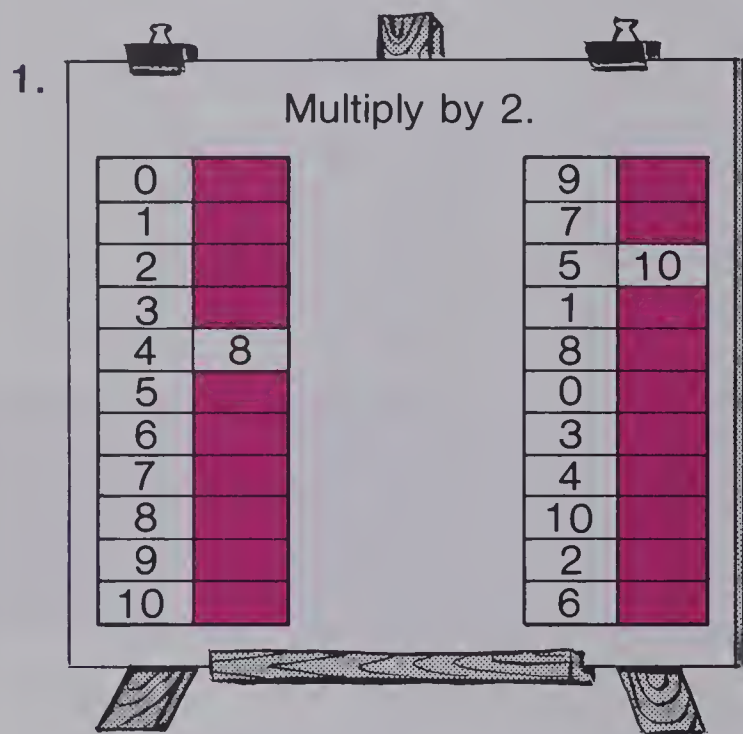
The blue row and column show  $4 \times 3 = 12$ .

Copy the table and complete it.

Use the order principle to help you find the missing products.

# Hobby Display

Complete the chart on each display stand.



Students set up displays to show their hobbies.

Read each mini-story, then solve.

3. Coin Collection

3 pages.

6 coins on each page.

How many coins?

5. Stamp Book

2 pages.

9 stamps on each page.

How many stamps?

7. Rock Samples

2 boxes.

7 rocks in each box.

How many rocks?

4. Glass Animals

3 display stands.

5 animals on each stand.

How many animals?

6. Movie Posters

3 movies.

2 posters for each movie.

How many posters?

8. Model Trucks

3 plastic transport trucks.

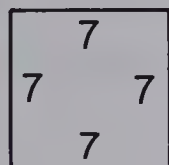
10 wheels on each.

How many wheels?

# Shapes and Games

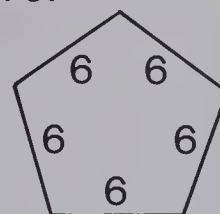
Read about these shapes and games, then solve.

1.



4 players.  
7 cards each.  
How many cards?  
 $4 \times 7 = \blacksquare$

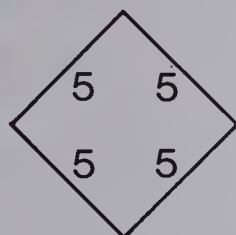
2.



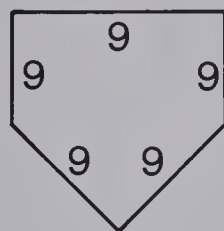
5 players.  
6 cards each.  
How many cards?  
 $5 \times 6 = \blacksquare$

Multiply to find how many cards in these games.

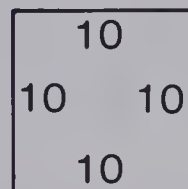
3.



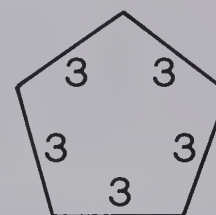
4.



5.



6.



7. Break the secret code and discover the message.

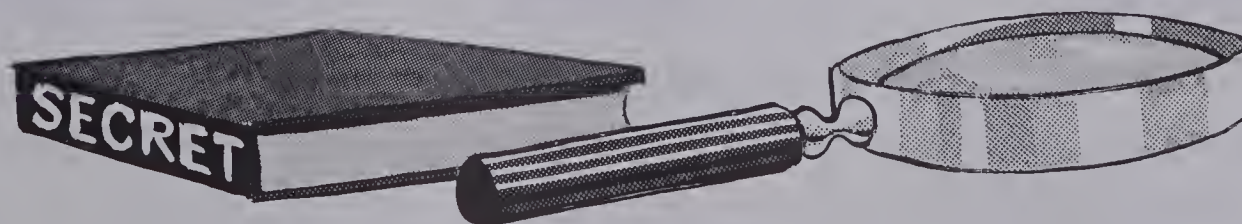
E	S	X	I	C	L	M	O	W	N	T	Z	U	P	F	A
8	15	17	20	6	18	24	12	21	9	16	5	10	14	11	35

Find the product for each multiplication phrase.

Write the code letter.

**FIRST WORD**  $4 \times 6$   $5 \times 2$   $3 \times 6$   $4 \times 4$   $10 \times 2$   $2 \times 7$   $6 \times 3$   $5 \times 4$   
 $1 \times 6$   $5 \times 7$   $8 \times 2$   $4 \times 5$   $4 \times 3$   $9 \times 1$

**SECOND WORD**  $2 \times 10$   $5 \times 3$  **THIRD WORD**  $3 \times 3$   $2 \times 4$   $7 \times 5$   $2 \times 8$





# Even and Odd Numbers

0 1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18 19  
 20 21 22 23 24 25 26 27 28 29  
 30 31 32 33 34 35 36 37 38 39  
 40 41 42 43 44 45 46 47 48 49

In this array:

All red numbers are even.

All blue numbers are odd.

## Exercises

1. What five different digits are in the *one's place* for even numbers? ■, ■, ■, ■, ■.
2. What five different digits are in the *one's place* for odd numbers? ■, ■, ■, ■, ■.
3. Make a rule that tells you whether a number is even or odd.

Let's explore some patterns with even and odd numbers!

4. Copy and complete these grids by multiplying. The first one is started.

(a) Even Odd

	×	8	7
Even	2	16	14
Odd	5		

(b) Even Odd

	×	6	9
Even	4		
Odd	3		

(c) Even Odd

	×	4	5
Even	2		
Odd	3		

5. Are your products even or odd when you multiply:

(a) an even  $\times$  an even?

(b) an even  $\times$  an odd?

(c) an odd  $\times$  an even?

(d) an odd  $\times$  an odd?

# Tiles

Joel placed tiles on his table.



How many tiles will he need to cover the table?

## Exercises

How many tiles?

1.



1 row of 5.

$$1 \times 5 = \blacksquare$$

$$\text{Is } 1 \times 5 = 5 \times 1?$$

2.

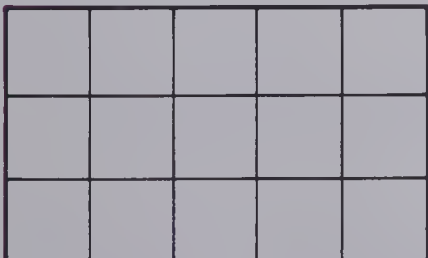


2 rows of 5.

$$2 \times 5 = \blacksquare$$

$$\text{Is } 2 \times 5 = 5 \times 2?$$

3.



3 rows of 5.

$$3 \times 5 = \blacksquare$$

$$\text{Is } 3 \times 5 = 5 \times 3?$$

4.



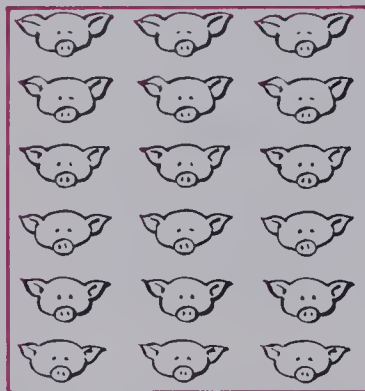
4 rows of 5.

$$4 \times 5 = \blacksquare$$

$$\text{Is } 4 \times 5 = 5 \times 4?$$

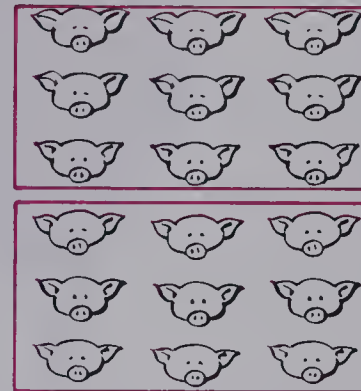
# Multiplication-Addition Principle

This array shows 6 threes.



6 threes

This array also shows 6 threes.



3 threes

and

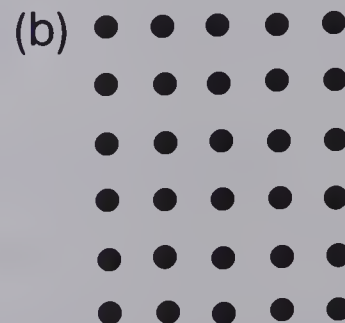
3 threes

## Exercises

- Copy the array for 6 threes.  
Use your copies to write 6 threes in other ways.
- Find other ways to show each of the following.  
Use arrays to help you.



4 threes

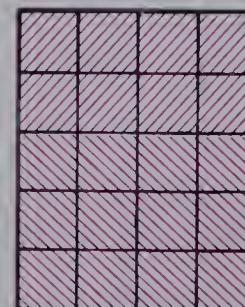


6 fives

- Draw and colour rectangles on graph paper to show the different ways to write 5 fours. One way is done for you.



5 fours



2 fours

and

3 fours



4. Give the missing numbers.

6 fives is the same as:  $\left\{ \begin{array}{l} 3 \text{ fives and } \blacksquare \text{ fives} \\ \blacksquare \text{ fives and } 2 \text{ fives} \\ 2 \text{ fives and } \blacksquare \text{ fives} \\ 1 \text{ five and } \blacksquare \text{ fives} \\ \blacksquare \text{ fives and } 1 \text{ five} \end{array} \right.$

5. Sandy wrote: 7 fives is the same as 4 fives and 3 fives.

Bruce wrote:  $7 \times 5 = (4 \times 5) + (3 \times 5)$ .

Use Bruce's method to show:

- |              |              |              |
|--------------|--------------|--------------|
| (a) 5 eights | (b) 4 eights | (c) 6 fives  |
| (d) 4 threes | (e) 5 fours  | (f) 6 sixes  |
| (g) 8 twos   | (h) 4 sevens | (i) 4 nines  |
| (j) 3 eights | (k) 9 fives  | (l) 6 eights |

6. Solve Bruce's equations in Question 5.

$$\begin{aligned} \text{Bruce wrote: } 7 \times 5 &= (4 \times 5) + (3 \times 5) \\ &= 20 + 15 \\ &= 35 \end{aligned}$$

- |                                 |                                 |                                 |
|---------------------------------|---------------------------------|---------------------------------|
| (a) $5 \times 8 = \blacksquare$ | (b) $4 \times 8 = \blacksquare$ | (c) $6 \times 5 = \blacksquare$ |
| (d) $4 \times 3 = \blacksquare$ | (e) $5 \times 4 = \blacksquare$ | (f) $6 \times 6 = \blacksquare$ |
| (g) $8 \times 2 = \blacksquare$ | (h) $4 \times 7 = \blacksquare$ | (i) $4 \times 9 = \blacksquare$ |
| (j) $3 \times 8 = \blacksquare$ | (k) $9 \times 5 = \blacksquare$ | (l) $6 \times 8 = \blacksquare$ |

# Completing the Table

x	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30					
7	0	7	14	21	28	35					
8	0	8	16	24	32	40			A	B	C
9	0	9	18	27	36	45			D	F	G
10	0	10	20	30	40	50			E	H	I

- Find the rest of the **six-facts** by using the multiplication-addition principle. Complete the red row.

$$\begin{aligned}
 6 \times 6 &= (2 \times 6) + (4 \times 6) \\
 &= 12 + 24 \\
 &= 36
 \end{aligned}$$

$$6 \times 7 = \blacksquare \quad 6 \times 8 = \blacksquare \quad 6 \times 9 = \blacksquare \quad 6 \times 10 = \blacksquare$$

- Use the order principle to help you complete the blue column.

$$\text{Since } 6 \times 7 = 42, \quad \text{then } 7 \times 6 = \blacksquare.$$

$$\text{Since } 6 \times 8 = 48, \quad \text{then } 8 \times 6 = \blacksquare.$$

$$\text{Since } 6 \times 9 = 54, \quad \text{then } 9 \times 6 = \blacksquare.$$

$$\text{Since } 6 \times 10 = 60, \quad \text{then } 10 \times 6 = \blacksquare.$$

Red

Blue

Use the multiplication-addition principle.

3. (a) **Seven-facts:**

$7 \times 7 = \blacksquare$

$7 \times 8 = \blacksquare$

$7 \times 9 = \blacksquare$

$7 \times 10 = \blacksquare$

Place your new seven-facts in the green row.

(b) Use the order principle to complete the yellow column.

4. (a) **Eight-facts:**

$8 \times 8 = \blacksquare$

$8 \times 9 = \blacksquare$

$8 \times 10 = \blacksquare$

Replace A, B, and C with your new facts.

(b) Use the order principle to find the facts for D and E.

5. (a) **Nine-facts:**

$9 \times 9 = \blacksquare$

$9 \times 10 = \blacksquare$

Replace F and G with your new facts.

(b) Use the order principle to find the fact for H.

6. **Ten-facts:**

$10 \times 10 = \blacksquare$

Replace I with your new fact.

7. Copy and complete.

(a)  $8 \times 9 = \blacksquare$

(b)  $9 \times 7 = \blacksquare$

(c)  $6 \times 10 = \blacksquare$

(d)  $7 \times 8 = \blacksquare$

(e)  $9 \times 9 = \blacksquare$

(f)  $8 \times 6 = \blacksquare$

(g)  $8 \times 8 = \blacksquare$

(h)  $7 \times 6 = \blacksquare$

(i)  $9 \times 10 = \blacksquare$



# Finding the Facts

Multiply.

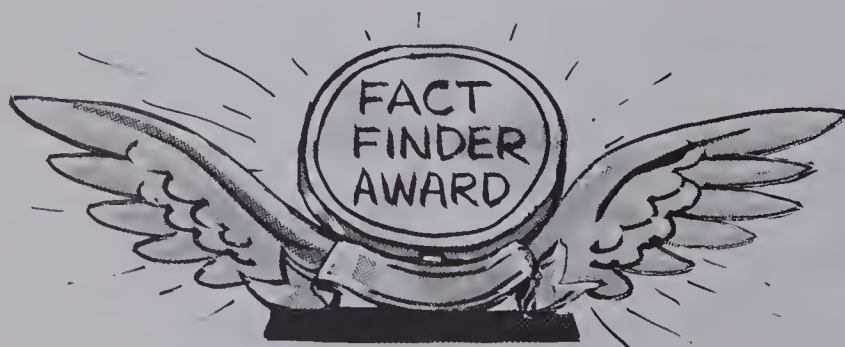
- |                      |                   |                    |                  |                  |
|----------------------|-------------------|--------------------|------------------|------------------|
| 1. (a) $3 \times 5$  | (b) $2 \times 8$  | (c) $0 \times 7$   | (d) $6 \times 8$ | (e) $4 \times 3$ |
| 2. (a) $10 \times 8$ | (b) $3 \times 9$  | (c) $8 \times 4$   | (d) $7 \times 7$ | (e) $1 \times 1$ |
| 3. (a) $9 \times 5$  | (b) $2 \times 3$  | (c) $1 \times 7$   | (d) $5 \times 6$ | (e) $3 \times 7$ |
| 4. (a) $7 \times 6$  | (b) $3 \times 10$ | (c) $8 \times 8$   | (d) $4 \times 6$ | (e) $5 \times 4$ |
| 5. (a) $9 \times 7$  | (b) $4 \times 9$  | (c) $3 \times 0$   | (d) $5 \times 8$ | (e) $6 \times 6$ |
| 6. (a) $6 \times 2$  | (b) $7 \times 4$  | (c) $10 \times 10$ | (d) $9 \times 9$ | (e) $8 \times 3$ |
| 7. (a) $4 \times 4$  | (b) $5 \times 7$  | (c) $6 \times 9$   | (d) $5 \times 5$ | (e) $9 \times 8$ |

Each correct "fact" is worth 1 point.

How do you rate?

## FACT FINDER AWARDS

Fantastic Fact Finder	35 - 31 points
Fine Fact Finder	30 - 28 points
Favorable Fact Finder	27 - 24 points
Fair Fact Finder	23 - 21 points
More Practice	20 or less



## BRAINTICKLER

When I multiply me by myself,  
the product is me again.

But my last digit is repeated.

$$AB \times AB = ABB$$

Who am I?

# Multiplying by 1, 10, 100, 1000

What is the pattern?

$7 \times 1 = 7$	$63 \times 1 = 63$
$7 \times 10 = 70$	$63 \times 10 = 630$
$7 \times 100 = 700$	$63 \times 100 = 6300$
$7 \times 1000 = 7000$	$63 \times 1000 = 63000$

## Exercises

1. Write the products.

$$5 \times 1 = 5$$

$$1 \times 23 = 23$$

$$5 \times 10 = 5 \blacksquare$$

$$10 \times 23 = 23 \blacksquare$$

$$5 \times 100 = 5 \blacksquare$$

$$100 \times 23 = 23 \blacksquare$$

$$5 \times 1000 = 5 \blacksquare$$

$$1000 \times 23 = 23 \blacksquare$$

2. Write a rule to help you multiply by

1      10      100      1000.

3. 24 boxes of 1 microscope each.

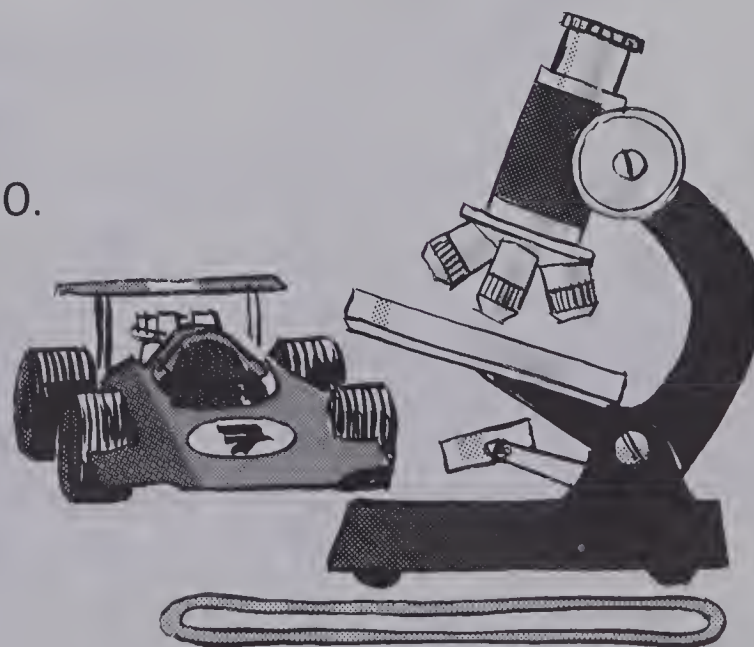
How many microscopes?

4. 37 boxes of 10 midget cars each.

How many midget cars?

5. 12 packages of 100 rubber bands each.

How many rubber bands?



# Multiplying by 1, 10, 100, 1000

1. Write the products.

(a)  $25 \times 1 = \blacksquare$   
 $25 \times 10 = \blacksquare$   
 $25 \times 100 = \blacksquare$   
 $25 \times 1000 = \blacksquare$

(b)  $1 \times 7 = \blacksquare$   
 $10 \times 7 = \blacksquare$   
 $100 \times 7 = \blacksquare$   
 $1000 \times 7 = \blacksquare$

(c)  $9 \times 1 = \blacksquare$   
 $9 \times 10 = \blacksquare$   
 $9 \times 100 = \blacksquare$   
 $9 \times 1000 = \blacksquare$

2. Solve the following.

(a) One dollar = 10 dimes.

How many dimes for:

5 dollars?

25 dollars?

76 dollars?

145 dollars?

(b) One metre = one hundred centimetres.

1 m = 100 cm

How many centimetres in:

6 m?

15 m?

65 m?

112 m?

(c) One box has 1000 bolts.

How many bolts in:

3 boxes?

24 boxes?

87 boxes?

135 boxes?

3. Extra practice. Write the products.

(a)  $10 \times 94 = \blacksquare$

(b)  $56 \times 100 = \blacksquare$

(c)  $1 \times 19 = \blacksquare$

(d)  $24 \times 1000 = \blacksquare$

(e)  $43 \times 100 = \blacksquare$

(f)  $100 \times 56 = \blacksquare$

(g)  $400 \times 1 = \blacksquare$

(h)  $23 \times 10 = \blacksquare$

(i)  $118 \times 100 = \blacksquare$

(j)  $52 \times 10 = \blacksquare$

(k)  $1000 \times 18 = \blacksquare$

(l)  $178 \times 10 = \blacksquare$

(m)  $1 \times 200 = \blacksquare$

(n)  $3 \times 1000 = \blacksquare$

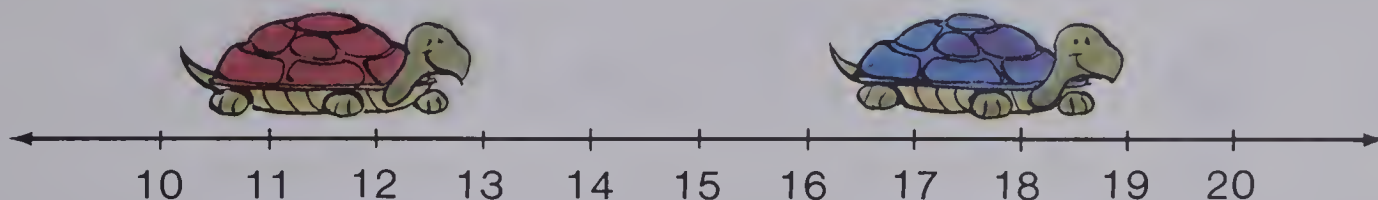
(o)  $100 \times 45 = \blacksquare$



# Rounding Numbers

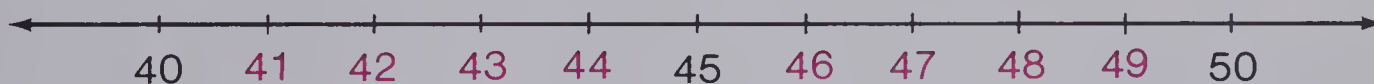
Is Redback closer to 10 or 20?

Is Blueback closer to 10 or 20?

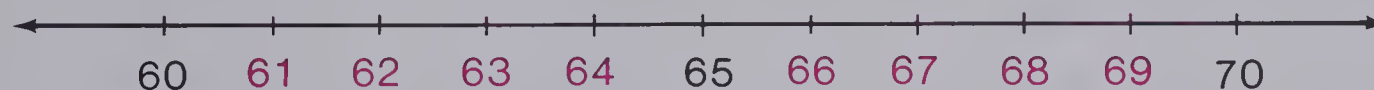


## Exercises

1. Which of the red numbers are closer to 40 than 50?  
Which are closer to 50?



2. Round each red number to the *nearest* multiple of 10.



61 → 60

63 → ■

66 → ■

68 → ■

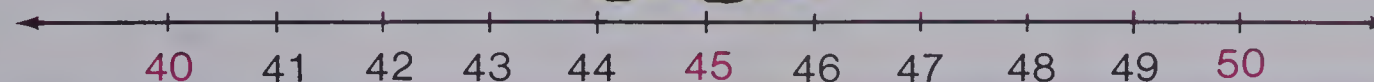
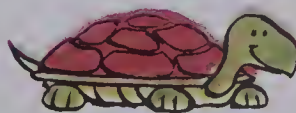
62 → ■

64 → ■

67 → ■

69 → ■

3. Is 45 closer to 40 or 50?



A number halfway between two multiples of 10 is rounded to the greater multiple of 10.

45 rounds to 50.

4. Round each number to the nearest multiple of 10.

(a) 42

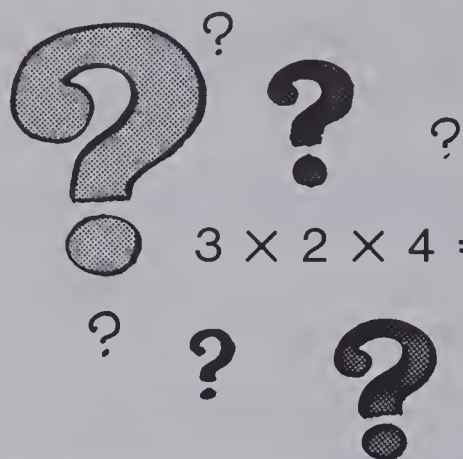
(b) 29

(c) 81

(d) 65

(e) 78

(f) 55



# Grouping Principle

Bill wrote:  $3 \times (2 \times 4) = 3 \times 8$   
 $= 24$

Anita wrote:  $(3 \times 2) \times 4 = 6 \times 4$   
 $= 24$

The **grouping principle for multiplication** says:

“Changing the grouping of the factors does not change the product.”

## Exercises

1. Copy and complete.

(a)  $1 \times (3 \times 2) = \blacksquare$   
 $(1 \times 3) \times 2 = \blacksquare$

(c)  $2 \times (4 \times 1) = \blacksquare$   
 $(2 \times 4) \times 1 = \blacksquare$

(b)  $(5 \times 2) \times 3 = \blacksquare$   
 $5 \times (2 \times 3) = \blacksquare$

(d)  $(5 \times 2) \times 4 = \blacksquare$   
 $5 \times (2 \times 4) = \blacksquare$

2. Copy and complete.

(a)  $(4 \times 2) \times 0 = \blacksquare$   
(c)  $3 \times 0 \times 2 = \blacksquare$   
(e)  $5 \times 2 \times 0 = \blacksquare$

(b)  $0 \times (3 \times 5) = \blacksquare$   
(d)  $1 \times 2 \times 0 = \blacksquare$   
(f)  $6 \times 0 \times 1 = \blacksquare$

3. Copy and complete. Group in any way.

(a)  $1 \times 2 \times 10 = \blacksquare$   
(c)  $3 \times 2 \times 10 = \blacksquare$   
(e)  $3 \times 1 \times 100 = \blacksquare$

(b)  $2 \times 3 \times 10 = \blacksquare$   
(d)  $2 \times 2 \times 100 = \blacksquare$   
(f)  $3 \times 2 \times 100 = \blacksquare$

# Multiples of 10

$$6 \times 30 = \blacksquare$$

Clue:

$$30 = 3 \times 10$$

We can solve  $6 \times 30$   
by thinking 6 times 3 tens.

Think:

$$\begin{aligned} 6 \times 30 \\ &= 6 \times 3 \times 10 \\ &= 18 \times 10 \\ &= 180 \end{aligned}$$

## Exercises

1. Complete these.

$$(a) 7 \times 60 \rightarrow 7 \times 6 \times 10$$

$$(b) 6 \times 50 \rightarrow 6 \times \blacksquare \times \blacksquare$$

$$(c) 3 \times 40 \rightarrow 3 \times \blacksquare \times \blacksquare$$

$$(d) 5 \times 70 \rightarrow 5 \times \blacksquare \times \blacksquare$$

2. Multiply.

$$(a) 4 \times 60 = \blacksquare$$

$$(b) 8 \times 20 = \blacksquare$$

$$(c) 7 \times 50 = \blacksquare$$

$$(d) 6 \times 60 = \blacksquare$$

$$(e) 9 \times 40 = \blacksquare$$

$$(f) 5 \times 90 = \blacksquare$$

3. Multiply. Can you find a pattern?

$$(a) 5 \times 3 = \blacksquare$$

$$(b) 2 \times 8 = \blacksquare$$

$$5 \times 30 = \blacksquare$$

$$2 \times 80 = \blacksquare$$

$$5 \times 300 = \blacksquare$$

$$2 \times 800 = \blacksquare$$

$$5 \times 3000 = \blacksquare$$

$$2 \times 8000 = \blacksquare$$

Make a rule that describes the pattern.

4. Use your rule to find the missing products.

$$(a) 8 \times 40 = \blacksquare$$

$$(b) 200 \times 2 = \blacksquare$$

$$(c) 4 \times 100 = \blacksquare$$

$$(d) 5 \times 60 = \blacksquare$$

$$(e) 400 \times 7 = \blacksquare$$

$$(f) 3000 \times 6 = \blacksquare$$



# Estimating

An **estimate** is a careful guess.

Fred used estimates to learn things about the airport.

8 parking levels.

94 parking spaces for each level.

About how many cars are in the parking garage when it's full?



Fred thought:  $8 \times 94$

Fred rounded off:  $8 \times 90$  (94 rounded to the nearest 10.)

Fred estimated:  $8 \times 90 = 720$

There is room for about ■ cars.

Multiples of 10 help  
us to estimate.

## Exercises

Help Fred estimate.

1. 5 runways.

78 lights on each runway.

About how many lights are there altogether?

Fred thought:  $5 \times 78$

Fred rounded off:  $5 \times 80$  (78 rounded to the nearest 10.)

Fred estimated:  $5 \times 80 = 400$

There are about ■ lights.



2. 92 passengers boarded a plane.  
Each passenger carried 8 kg of luggage.  
About how much luggage did the plane carry?

$$8 \times 92$$

$$8 \times \blacksquare$$

$$8 \times \blacksquare = \blacksquare$$

3. 5 planes land every minute.  
About how many land in 29 min?

$$5 \times 29$$

$$5 \times \blacksquare$$

$$5 \times \blacksquare = \blacksquare$$

About  $\blacksquare$  planes land in 29 min.

4. Abigail Airlines owns 58 airplanes.  
7 crew members for each airplane.  
About how many crew members altogether?

$$7 \times 58$$

$$7 \times \blacksquare$$

$$7 \times \blacksquare = \blacksquare$$

About  $\blacksquare$  crew members altogether.

6. Complete.

(a)  $8 \times 43$

(b)  $4 \times 71$

(c)  $6 \times 35$

(d)  $9 \times 28$

$8 \times 40$

$4 \times \blacksquare$

$6 \times \blacksquare$

$9 \times \blacksquare$

7. Estimate these products.

(a)  $5 \times 32$

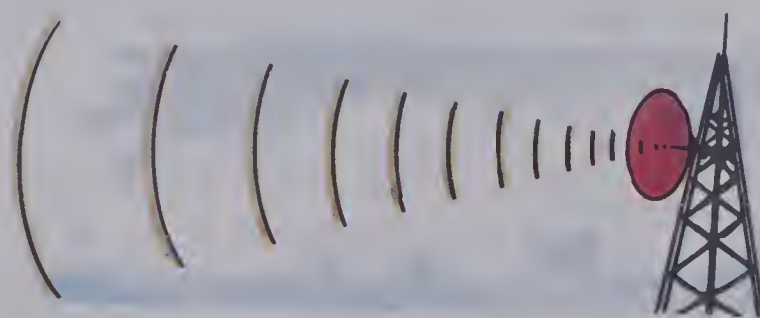
(b)  $8 \times 49$

(c)  $3 \times 74$

(d)  $6 \times 48$

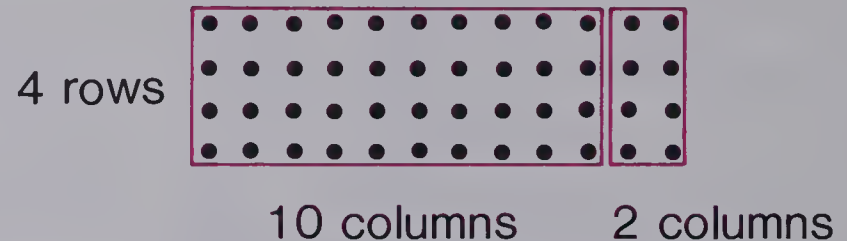
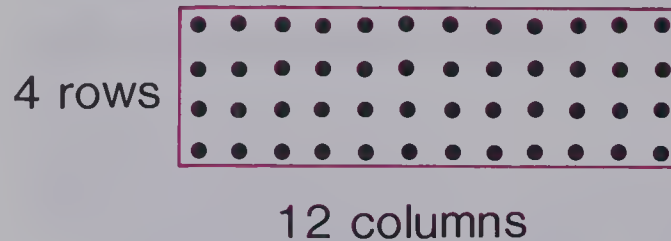
(e)  $4 \times 83$

(f)  $7 \times 57$



# Multiplying and Adding

$4 \times 12 = \blacksquare$  How can we find the missing product?



This array shows  $4 \times 12$ .

This array also shows  $4 \times 12$ .

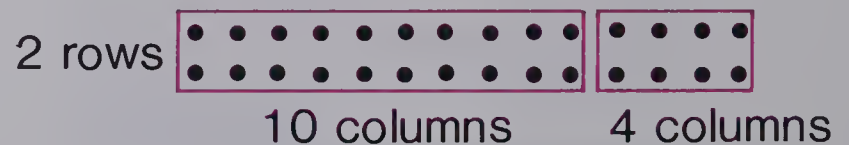
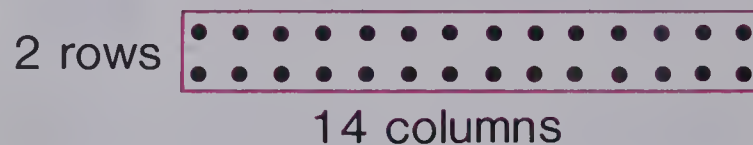
Bob found the missing product this way.

$$\begin{aligned} 4 \times 12 &= (4 \times 10) + (4 \times 2) \\ &= 40 + 8 \\ &= 48 \end{aligned}$$

## Exercises

1. Use Bob's method to find the missing products.

$2 \times 14 = \blacksquare$



2. Write the products.

(a)  $3 \times 12 = \blacksquare$        $3 \times 12 = (3 \times 10) + (3 \times 2)$   
 $= 30 + 6$   
 $= \blacksquare$

(b)  $4 \times 21 = \blacksquare$

(c)  $3 \times 32 = \blacksquare$

(d)  $5 \times 41 = \blacksquare$

(e)  $7 \times 31 = \blacksquare$

(f)  $4 \times 32 = \blacksquare$

(g)  $4 \times 52 = \blacksquare$



# Picking Peaches

Brenda helps her Uncle pick peaches.

Brenda has picked 3 boxes with 21 peaches in each.

How many peaches altogether?

Step 1

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 3 \end{array} \quad (3 \times 1)$$

Step 2

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 3 \\ 60 \end{array} \quad (3 \times 20)$$

Step 3

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 3 \\ 60 \\ \hline 63 \end{array} \quad (3 + 60)$$



Brenda picked 63 peaches.

## Exercises

Use Brenda's method to complete each multiplication.

1. 
$$\begin{array}{r} 32 \\ \times 3 \\ \hline 6 \end{array} \quad (3 \times 2)$$
  

$$\begin{array}{r} \blacksquare \blacksquare \\ (3 \times 30) \\ \hline \blacksquare \blacksquare \end{array}$$

2. 
$$\begin{array}{r} 41 \\ \times 3 \\ \hline \blacksquare \end{array} \quad (3 \times 1)$$
  

$$\begin{array}{r} 120 \\ (3 \times \blacksquare \blacksquare) \\ \hline \blacksquare \blacksquare \blacksquare \end{array}$$

3. 
$$\begin{array}{r} 52 \\ \times 4 \\ \hline \blacksquare \end{array} \quad (4 \times \blacksquare)$$
  

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \\ (4 \times \blacksquare \blacksquare \blacksquare) \\ \hline \blacksquare \blacksquare \blacksquare \end{array}$$

4. 
$$\begin{array}{r} 42 \\ \times 4 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 33 \\ \times 2 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 62 \\ \times 2 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 12 \\ \times 4 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 31 \\ \times 7 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$$

# The Cannery

Bob packs cans of fruit for the Cannery.  
Bob packs 7 cartons with 24 cans in each.  
How many cans altogether?



Step 1

$$\begin{array}{r} 24 \\ \times 7 \\ \hline 28 \end{array} (7 \times 4)$$

Step 2

$$\begin{array}{r} 24 \\ \times 7 \\ \hline 28 \\ 140 \end{array} (7 \times 20)$$

Step 3

$$\begin{array}{r} 24 \\ \times 7 \\ \hline 28 \\ 140 \\ \hline 168 \end{array} (28 + 140)$$

Bob packed 168 cans altogether.

## Exercises

Use Bob's method to complete each multiplication.

1.

$$\begin{array}{r} 34 \\ \times 6 \\ \hline 24 \end{array} (6 \times 4)$$

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \end{array} (6 \times 30)$$

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \end{array}$$

2.

$$\begin{array}{r} 65 \\ \times 7 \\ \hline \blacksquare \blacksquare \end{array} (7 \times 5)$$

$$\begin{array}{r} 420 \end{array} (7 \times 60)$$

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \end{array}$$

3.

$$\begin{array}{r} 42 \\ \times 5 \\ \hline \blacksquare \blacksquare \end{array} (5 \times 2)$$

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \end{array} (5 \times 40)$$

$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \end{array}$$

4. Estimate first, then multiply.

(a)

$$\begin{array}{r} 74 \\ \times 3 \\ \hline \end{array}$$

(b)

$$\begin{array}{r} 67 \\ \times 2 \\ \hline \end{array}$$

(c)

$$\begin{array}{r} 38 \\ \times 4 \\ \hline \end{array}$$

(d)

$$\begin{array}{r} 63 \\ \times 5 \\ \hline \end{array}$$

(e)

$$\begin{array}{r} 37 \\ \times 4 \\ \hline \end{array}$$

(f)

$$\begin{array}{r} 28 \\ \times 3 \\ \hline \end{array}$$

(g)

$$\begin{array}{r} 85 \\ \times 4 \\ \hline \end{array}$$

(h)

$$\begin{array}{r} 35 \\ \times 9 \\ \hline \end{array}$$

(i)

$$\begin{array}{r} 54 \\ \times 4 \\ \hline \end{array}$$

(j)

$$\begin{array}{r} 92 \\ \times 3 \\ \hline \end{array}$$

# A Short Form

This short form saves time.

$$\begin{array}{r} 34 \\ \times 7 \\ \hline ? \end{array}$$

$$\begin{array}{r} 2 \\ 34 \\ \times 7 \\ \hline 238 \end{array}$$

The short form works this way.

*Step 1*

$$\begin{array}{r} 2 \\ 34 \\ \times 7 \\ \hline 8 \end{array}$$

Write 2 here, meaning 2 tens.

(7 × 4 = 28)

Write 8 and 2.

*Step 2*

$$\begin{array}{r} 2 \\ 34 \\ \times 7 \\ \hline 238 \end{array}$$

(7 × 3 tens = 21 tens)

Add 2 tens.      2 tens

Write 23.      23 tens.

## Exercises

Estimate first, then use the short form to multiply.

1.  $\begin{array}{r} 38 \\ \times 6 \\ \hline \end{array}$

2.  $\begin{array}{r} 63 \\ \times 4 \\ \hline \end{array}$

3.  $\begin{array}{r} 73 \\ \times 5 \\ \hline \end{array}$

4.  $\begin{array}{r} 46 \\ \times 3 \\ \hline \end{array}$

5.  $\begin{array}{r} 57 \\ \times 5 \\ \hline \end{array}$

6.  $\begin{array}{r} 28 \\ \times 4 \\ \hline \end{array}$

7.  $\begin{array}{r} 37 \\ \times 6 \\ \hline \end{array}$

8.  $\begin{array}{r} 52 \\ \times 8 \\ \hline \end{array}$

9.  $\begin{array}{r} 43 \\ \times 7 \\ \hline \end{array}$

10.  $\begin{array}{r} 22 \\ \times 9 \\ \hline \end{array}$

11.  $\begin{array}{r} 37 \\ \times 4 \\ \hline \end{array}$

12.  $\begin{array}{r} 65 \\ \times 6 \\ \hline \end{array}$

13.  $\begin{array}{r} 29 \\ \times 3 \\ \hline \end{array}$

14.  $\begin{array}{r} 75 \\ \times 2 \\ \hline \end{array}$

15.  $\begin{array}{r} 48 \\ \times 3 \\ \hline \end{array}$

16.  $\begin{array}{r} 83 \\ \times 4 \\ \hline \end{array}$

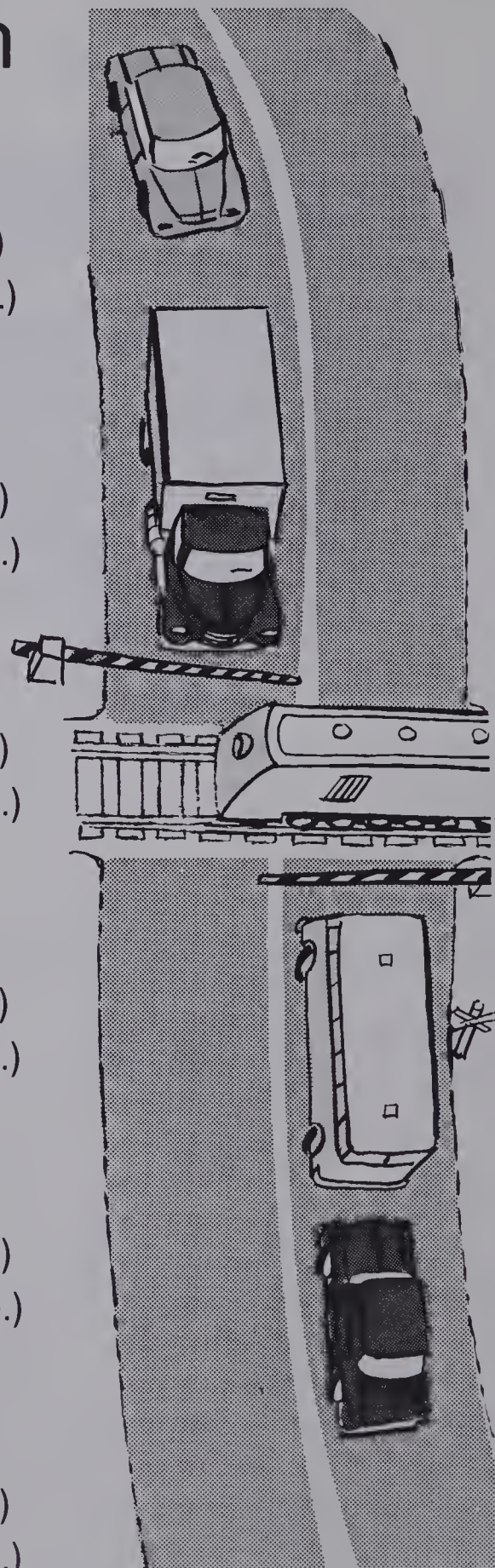
17.  $\begin{array}{r} 15 \\ \times 9 \\ \hline \end{array}$

18.  $\begin{array}{r} 67 \\ \times 5 \\ \hline \end{array}$



# Transportation

1. 23 trucks.  
8 large cartons on each truck.  
About how many cartons altogether? (Estimate.)  
How many cartons altogether? (Calculate.)
2. 28 cars going to the beach.  
6 people in each car.  
About how many people altogether? (Estimate.)  
How many people altogether? (Calculate.)
3. 9 cars in a train.  
35 passengers in each car.  
About how many passengers altogether? (Estimate.)  
How many passengers altogether? (Calculate.)
4. 5 levels in a parking garage.  
48 cars on each level.  
About how many cars altogether? (Estimate.)  
How many cars altogether? (Calculate.)
5. 7 buses going to a conservation park.  
39 students on each bus.  
About how many students altogether? (Estimate.)  
How many students altogether? (Calculate.)
6. 16 trucks hauling tractors.  
4 tractors on each truck.  
About how many tractors altogether? (Estimate.)  
How many tractors altogether? (Calculate.)



# Multiplying Larger Numbers

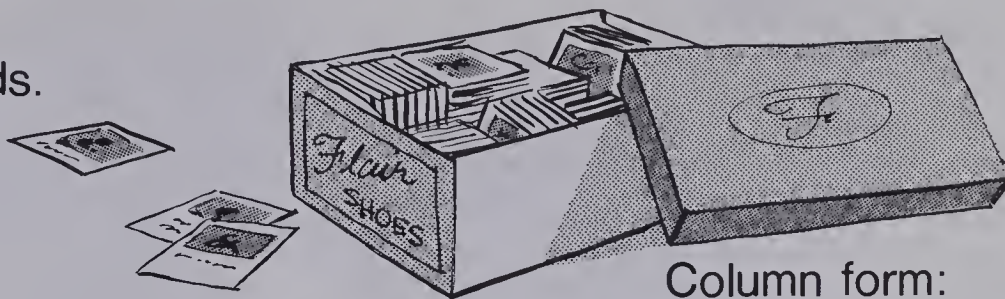
Robin has 4 boxes of baseball cards.

Each box has 312 cards.

How many cards altogether?

$$312 = 300 + 10 + 2$$

$$\begin{aligned} 4 \times 312 &= (4 \times 300) + (4 \times 10) + (4 \times 2) \\ &= 1200 + 40 + 8 \\ &= 1248 \end{aligned}$$



Column form:

$$\begin{array}{r} 312 \\ \times 4 \\ \hline 8 \text{ (4} \times 2\text{)} \\ 40 \text{ (4} \times 10\text{)} \\ 1200 \text{ (4} \times 300\text{)} \\ \hline 1248 \end{array}$$

Robin has 1248 cards.

**Exercises** Complete each multiplication.

1. 
$$\begin{array}{r} 453 \\ \times 4 \\ \hline 12 \text{ (4} \times 3\text{)} \\ 200 \text{ (4} \times 50\text{)} \\ 1600 \text{ (4} \times 400\text{)} \\ \hline \end{array}$$

■■■■

2. 
$$\begin{array}{r} 342 \\ \times 6 \\ \hline \end{array}$$

■■ (6 × 2)  
■■■ (6 × 40)  
■■■■ (6 × 300)

■■■■

3. 
$$\begin{array}{r} 327 \\ \times 7 \\ \hline \end{array}$$

■■ (7 × ■)  
■■■ (7 × ■■)  
■■■■ (7 × ■■■)

■■■■

4. 
$$\begin{array}{r} 364 \\ \times 4 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 522 \\ \times 6 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 623 \\ \times 4 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 424 \\ \times 8 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 218 \\ \times 7 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 341 \\ \times 5 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 482 \\ \times 3 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 652 \\ \times 2 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 717 \\ \times 4 \\ \hline \end{array}$$

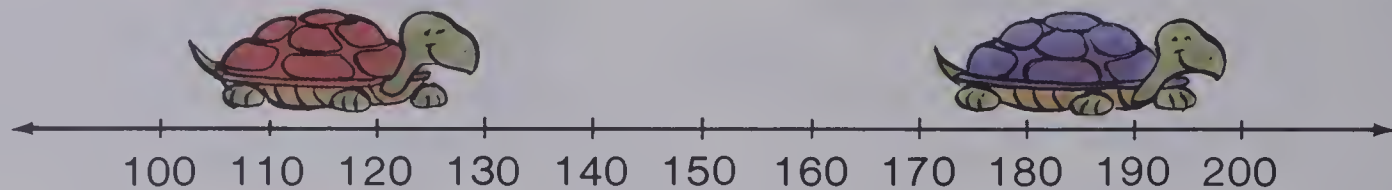
13. 
$$\begin{array}{r} 487 \\ \times 8 \\ \hline \end{array}$$



# Rounding Numbers

Is Redback closer to 100 or 200?

Is Blueback closer to 100 or 200?

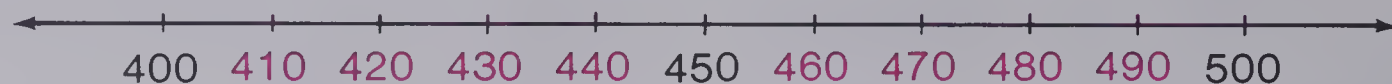


## Exercises

- Which of the red numbers are closer to 200 than 300?  
Which are closer to 300?



- Round each red number to the nearest multiple of 100.



410 → 400	430 → ■	460 → ■	480 → ■
420 → ■	440 → ■	470 → ■	490 → ■

- Is 350 closer to 300 or 400?



A number halfway between two multiples of 100  
is rounded to the greater multiple of 100.

- Round each number to the nearest multiple of 100.

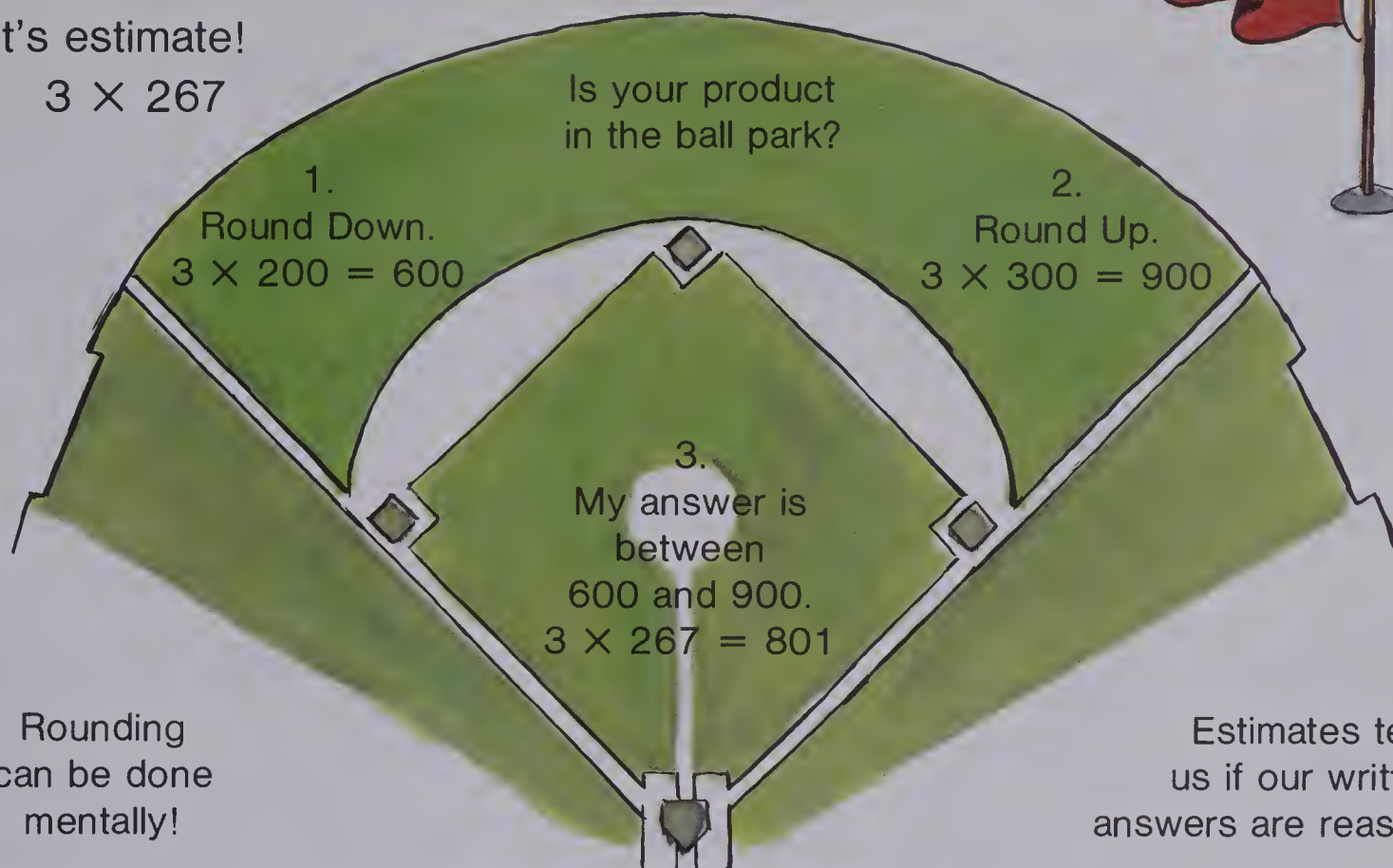
(a) 465	(b) 208	(c) 150	(d) 719	(e) 367	(f) 255
(g) 840	(h) 110	(i) 689	(j) 888	(k) 450	(l) 506



# In the Ball Park

Let's estimate!

$$3 \times 267$$

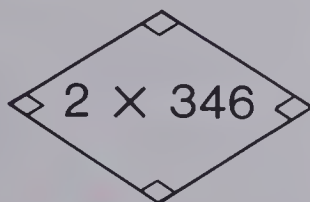


## Exercises

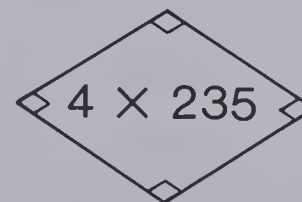
Round down and up *mentally*, then calculate the product.

Is your product in the ball park?

1. Round down.  $2 \times 346$  Round up.



2. Round down.  $4 \times 235$  Round up.



3.  $\begin{array}{r} 416 \\ \times 5 \\ \hline \end{array}$

4.  $\begin{array}{r} 212 \\ \times 3 \\ \hline \end{array}$

5.  $\begin{array}{r} 675 \\ \times 2 \\ \hline \end{array}$

6.  $\begin{array}{r} 520 \\ \times 4 \\ \hline \end{array}$

7.  $\begin{array}{r} 382 \\ \times 3 \\ \hline \end{array}$

8.  $\begin{array}{r} 315 \\ \times 7 \\ \hline \end{array}$

9.  $\begin{array}{r} 781 \\ \times 4 \\ \hline \end{array}$

10.  $\begin{array}{r} 623 \\ \times 3 \\ \hline \end{array}$

11.  $\begin{array}{r} 580 \\ \times 2 \\ \hline \end{array}$

12.  $\begin{array}{r} 168 \\ \times 4 \\ \hline \end{array}$

13.  $\begin{array}{r} 612 \\ \times 5 \\ \hline \end{array}$

14.  $\begin{array}{r} 829 \\ \times 7 \\ \hline \end{array}$

# The Short Form

Let's use the short-form method.

$3 \times 312 = \blacksquare$

Step 1

$$\begin{array}{r} 312 \\ \times 3 \quad 3 \times 2 = 6 \\ \hline 6 \end{array}$$

Write 6.

Step 2

$$\begin{array}{r} 312 \\ \times 3 \quad 3 \times 1 \text{ ten} = 3 \text{ tens} \\ \hline 36 \end{array}$$

Write 3.

Step 3

$$\begin{array}{r} 312 \\ \times 3 \quad 3 \times 3 \text{ hundreds} = 9 \text{ hundreds} \\ \hline 936 \end{array}$$

Write 9.

$6 \times 321 = \blacksquare$

Step 1

$$\begin{array}{r} 321 \\ \times 6 \quad 6 \times 1 = 6 \\ \hline 6 \end{array}$$

Write 6.

Step 2

$$\begin{array}{r} 321 \\ \times 6 \quad 6 \times 2 \text{ tens} = 12 \text{ tens} \\ \hline 26 \end{array}$$

Write 2.

Step 3

$$\begin{array}{r} 321 \\ \times 6 \quad 6 \times 3 \text{ hundreds} = 18 \text{ hundreds} \\ \hline 1926 \end{array}$$

Add 1 hundred

Write 19.

19 hundreds

Regroup 1 hundred.

**Exercises** Copy and complete each multiplication.

1.  $\begin{array}{r} 324 \\ \times 2 \\ \hline \blacksquare 48 \end{array}$

2.  $\begin{array}{r} 231 \\ \times 3 \\ \hline \blacksquare \blacksquare 3 \end{array}$

3.  $\begin{array}{r} 463 \\ \times 3 \\ \hline \blacksquare \blacksquare 89 \end{array}$

4.  $\begin{array}{r} 341 \\ \times 4 \\ \hline \blacksquare \blacksquare \blacksquare 4 \end{array}$

Multiply. Use the short form.

5.  $\begin{array}{r} 214 \\ \times 2 \\ \hline \end{array}$

6.  $\begin{array}{r} 113 \\ \times 3 \\ \hline \end{array}$

7.  $\begin{array}{r} 322 \\ \times 3 \\ \hline \end{array}$

8.  $\begin{array}{r} 142 \\ \times 2 \\ \hline \end{array}$

9.  $\begin{array}{r} 241 \\ \times 6 \\ \hline \end{array}$

10.  $\begin{array}{r} 472 \\ \times 3 \\ \hline \end{array}$

11.  $\begin{array}{r} 351 \\ \times 5 \\ \hline \end{array}$

12.  $\begin{array}{r} 362 \\ \times 4 \\ \hline \end{array}$

13.  $\begin{array}{r} 612 \\ \times 3 \\ \hline \end{array}$

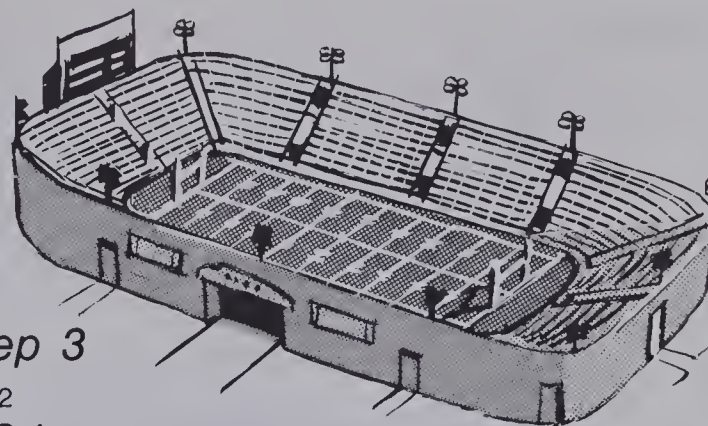
14.  $\begin{array}{r} 523 \\ \times 3 \\ \hline \end{array}$

15.  $\begin{array}{r} 421 \\ \times 6 \\ \hline \end{array}$

16.  $\begin{array}{r} 382 \\ \times 3 \\ \hline \end{array}$

# Extending the Short Form

There are 6 sections in the Bradville Stadium.  
Each section has 324 seats.  
How many seats altogether?



<b>Step 1</b>	<b>Step 2</b>	<b>Step 3</b>
$\begin{array}{r} 2 \\ 324 \\ \times 6 \\ \hline \end{array}$ $6 \times 4 = 24$	$\begin{array}{r} 12 \\ 324 \\ \times 6 \\ \hline \end{array}$ $6 \times 2 \text{ tens} = 12 \text{ tens}$	$\begin{array}{r} 12 \\ 324 \\ \times 6 \\ \hline \end{array}$ $6 \times 3 \text{ hundreds} = 18 \text{ hundreds}$
$\begin{array}{r} 4 \\ \hline \end{array}$ Write 4. Regroup 2 tens.	$\begin{array}{r} 44 \\ \hline \end{array}$ Add Write 4. Regroup 1 hundred.	$\begin{array}{r} 1944 \\ \hline \end{array}$ Add Write 19. 19 hundreds

**Exercises** Copy and complete each multiplication.

$\begin{array}{r} 12 \\ 1. \quad 346 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ 2. \quad 423 \\ \times 5 \\ \hline \end{array}$	$\begin{array}{r} \quad \quad \\ 3. \quad 352 \\ \times 6 \\ \hline \end{array}$
$\begin{array}{r} \blacksquare \blacksquare \blacksquare \\ 4. \quad 254 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} \blacksquare \blacksquare \blacksquare \blacksquare \\ 5. \quad 263 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} \blacksquare \blacksquare \blacksquare \blacksquare \blacksquare \\ 6. \quad 353 \\ \times 5 \\ \hline \end{array}$
$\begin{array}{r} 7. \quad 283 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 8. \quad 132 \\ \times 9 \\ \hline \end{array}$	$\begin{array}{r} 9. \quad 367 \\ \times 4 \\ \hline \end{array}$
$\begin{array}{r} 10. \quad 544 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 11. \quad 232 \\ \times 8 \\ \hline \end{array}$	$\begin{array}{r} 12. \quad 435 \\ \times 4 \\ \hline \end{array}$
$\begin{array}{r} 13. \quad 675 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 14. \quad 243 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 15. \quad 566 \\ \times 2 \\ \hline \end{array}$
$\begin{array}{r} 16. \quad \$3.84 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 17. \quad \$2.42 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 18. \quad \$4.36 \\ \times 5 \\ \hline \end{array}$
$\begin{array}{r} 19. \quad \$3.23 \\ \times 7 \\ \hline \end{array}$	$\begin{array}{r} 20. \quad \$1.49 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} 21. \quad \$3.78 \\ \times 5 \\ \hline \end{array}$



# Practice

Multiply.

1. (a)  $3 \times 10$  (b)  $15 \times 100$  (c)  $1000 \times 6$  (d)  $53 \times 1$  (e)  $126 \times 10$

2. (a)  $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$  (b)  $\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$  (c)  $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$  (d)  $\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$  (e)  $\begin{array}{r} 43 \\ \times 3 \\ \hline \end{array}$

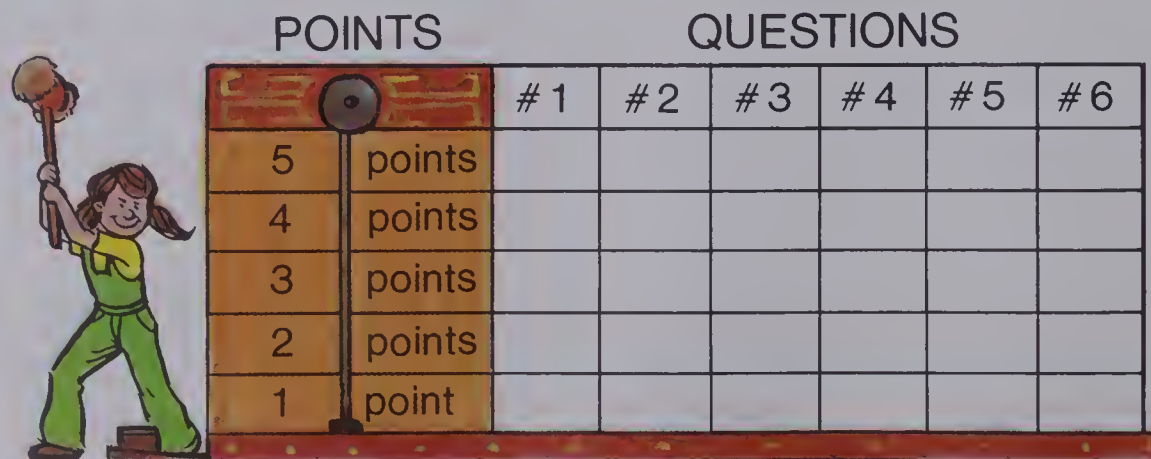
3. (a)  $\begin{array}{r} 56 \\ \times 3 \\ \hline \end{array}$  (b)  $\begin{array}{r} 47 \\ \times 4 \\ \hline \end{array}$  (c)  $\begin{array}{r} 28 \\ \times 5 \\ \hline \end{array}$  (d)  $\begin{array}{r} 34 \\ \times 6 \\ \hline \end{array}$  (e)  $\begin{array}{r} 44 \\ \times 7 \\ \hline \end{array}$

4. (a)  $\begin{array}{r} 213 \\ \times 3 \\ \hline \end{array}$  (b)  $\begin{array}{r} 124 \\ \times 2 \\ \hline \end{array}$  (c)  $\begin{array}{r} 312 \\ \times 2 \\ \hline \end{array}$  (d)  $\begin{array}{r} 232 \\ \times 2 \\ \hline \end{array}$  (e)  $\begin{array}{r} 132 \\ \times 3 \\ \hline \end{array}$

5. (a)  $\begin{array}{r} \$3.61 \\ \times 2 \\ \hline \end{array}$  (b)  $\begin{array}{r} \$2.42 \\ \times 4 \\ \hline \end{array}$  (c)  $\begin{array}{r} \$4.52 \\ \times 3 \\ \hline \end{array}$  (d)  $\begin{array}{r} \$2.31 \\ \times 6 \\ \hline \end{array}$  (e)  $\begin{array}{r} \$2.83 \\ \times 3 \\ \hline \end{array}$

6. (a)  $\begin{array}{r} 347 \\ \times 3 \\ \hline \end{array}$  (b)  $\begin{array}{r} 265 \\ \times 5 \\ \hline \end{array}$  (c)  $\begin{array}{r} 453 \\ \times 6 \\ \hline \end{array}$  (d)  $\begin{array}{r} 324 \\ \times 7 \\ \hline \end{array}$  (e)  $\begin{array}{r} 543 \\ \times 4 \\ \hline \end{array}$

Each correct answer is worth 1 point. Graph your results.



# Sports Shop Owner

Arvin Sports Factory Catalogue.		Footballs	— 28 per box
Tennis balls	— 25 per box	Basketballs	— 47 per box
Soccer balls	— 36 per box	Softballs	— 54 per box
Golf balls	— 82 per box	Volleyballs	— 65 per box
Beach balls	— 75 per box	All products guaranteed.	

The Findlays run a sports shop. Help them prepare an order.  
Find out how many balls there are of each kind.

- Please order:
- 5 boxes of footballs.
  - 4 boxes of soccer balls.
  - 8 boxes of softballs.
  - 2 boxes of basketballs.
  - 9 boxes of tennis balls.
  - 6 boxes of volleyballs.
  - 3 boxes of beach balls.
  - 7 boxes of golf balls.

Total



What is the greatest number of balls ordered?  
What is the smallest number of balls ordered?  
Find the difference.

# Chapter Test

1. Round to the nearest 10.

- (a) 24      (b) 85      (c) 137      (d) 53      (e) 67      (f) 31      (g) 189

2. Round to the nearest 100.

- (a) 643      (b) 875      (c) 291      (d) 545      (e) 250      (f) 767      (g) 477

3. Estimate, and then calculate.

- |     |            |     |            |     |            |     |            |     |            |
|-----|------------|-----|------------|-----|------------|-----|------------|-----|------------|
| (a) | 23         | (b) | 35         | (c) | 342        | (d) | 89         | (e) | 111        |
|     | $\times 6$ |     | $\times 7$ |     | $\times 5$ |     | $\times 9$ |     | $\times 4$ |
|     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |

4. Multiply.

- |                      |                    |                      |                     |                    |
|----------------------|--------------------|----------------------|---------------------|--------------------|
| (a) $7 \times 10$    | (b) $9 \times 100$ | (c) $14 \times 1000$ | (d) $10 \times 10$  | (e) $140 \times 1$ |
| (f) $35 \times 1000$ | (g) $26 \times 10$ | (h) $138 \times 1$   | (i) $100 \times 75$ | (j) $7 \times 100$ |

5. Multiply.

- |     |            |     |            |     |            |     |            |     |            |
|-----|------------|-----|------------|-----|------------|-----|------------|-----|------------|
| (a) | 21         | (b) | 62         | (c) | 50         | (d) | 43         | (e) | 47         |
|     | $\times 4$ |     | $\times 3$ |     | $\times 7$ |     | $\times 6$ |     | $\times 9$ |
|     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |
| (f) | 214        | (g) | 210        | (h) | 421        | (i) | 564        | (j) | 107        |
|     | $\times 2$ |     | $\times 7$ |     | $\times 6$ |     | $\times 4$ |     | $\times 8$ |
|     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |
| (k) | 143        | (l) | 377        | (m) | 282        | (n) | 447        | (o) | 601        |
|     | $\times 4$ |     | $\times 5$ |     | $\times 3$ |     | $\times 6$ |     | $\times 8$ |
|     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |     | <hr/>      |

6. An office building has 7 floors.  
Each floor has 24 telephones.  
How many telephones altogether?

7. An apartment building has 9 floors.  
There are 132 lights on each floor.  
How many lights altogether?



# Cumulative Review

- Write numbers for these.
  - 8 thousands, 5 hundreds, 0 tens, 2 ones
  - five thousand, nine hundred seventy
- Give the meaning of the 6 in each number.
  - 5627
  - 64 250
  - 52 836
  - 4765
  - 65
- Compare. Use  $<$ ,  $>$ , or  $=$ .
  - $46 \bullet 62$
  - $509 \bullet 429$
  - $6397 \bullet 6529$
  - $227 \bullet 227$
  - $57 \bullet 91$
  - $112 \bullet 112$
  - $7655 \bullet 7654$
  - $783 \bullet 780$
- Make these number sentences true.
  - $7 + \blacksquare = 12$
  - $15 - \blacksquare = 7$
  - $\blacksquare + 6 = 17$
  - $17 - \blacksquare = 8$
- Add.
 

$\begin{array}{r} (a) \quad 6458 \\ + 3379 \\ \hline \end{array}$	$\begin{array}{r} (b) \quad 1627 \\ \quad 485 \\ + 3062 \\ \hline \end{array}$
---	--
- Subtract.
 

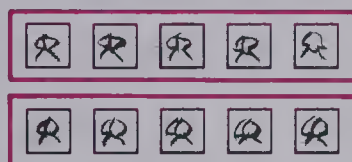
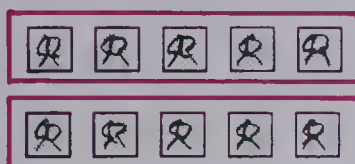
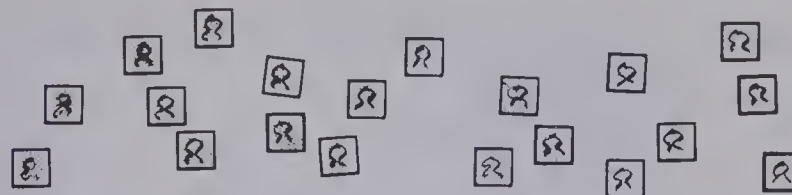
$\begin{array}{r} (a) \quad 403 \\ - 125 \\ \hline \end{array}$	$\begin{array}{r} (b) \quad 4261 \\ - 2587 \\ \hline \end{array}$
---	---
- Multiply.
 

$\begin{array}{r} (a) \quad 412 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} (b) \quad 534 \\ \times 6 \\ \hline \end{array}$	$\begin{array}{r} (c) \quad 431 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} (d) \quad 762 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} (e) \quad 592 \\ \times 7 \\ \hline \end{array}$
--	--	--	--	--
- Which is longer?
  - 250 cm or 2 m
  - 2 cm or 30 mm
- Draw a line 2 dm long.
  - How long is it in centimetres?
  - How long is it in millimetres?
- About how long is a dollar bill?  
15 mm, 15 cm, or 15 dm?
- Pam drove 145 km, and then another 87 km.  
How many kilometres altogether?



# Division

Tom has 20 stamps.  
He wants to put them in groups of 5.  
How many groups?



How many groups of 5 in 20?

$$20 \div 5 = \blacksquare$$

$$\begin{array}{r} \blacksquare \\ 5 \overline{)20} \end{array}$$

## Exercises

1. Draw 18 stamps on a piece of paper.  
Circle groups of 6.  
How many groups of 6 in 18?

$$18 \div 6 = \blacksquare \quad \begin{array}{r} \blacksquare \\ 6 \overline{)18} \end{array}$$



2. Draw 12 stamps.  
Circle groups of 3.  
How many groups of 3 in 12?

$$12 \div 3 = \blacksquare \quad \begin{array}{r} \blacksquare \\ 3 \overline{)12} \end{array}$$

3. Draw 24 stamps.  
Circle groups of 6.  
How many groups of 6 in 24?

$$24 \div 6 = \blacksquare \quad \begin{array}{r} \blacksquare \\ 6 \overline{)24} \end{array}$$

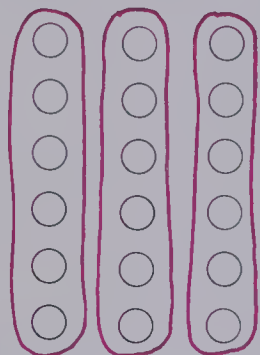
Write a division sentence for each. Find each answer.

4. How many groups of 7 in 21?
5. How many groups of 3 in 18?
6. How many groups of 4 in 12?
7. How many groups of 2 in 10?
8. How many groups of 5 in 25?
9. How many groups of 6 in 30?

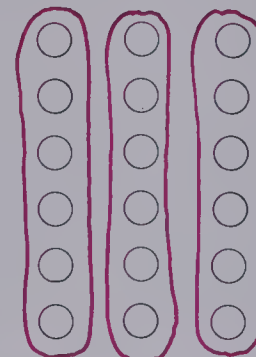


# Multiplication and Division

Brian uses multiplication facts to help him divide.



3 groups of 6.  
 $3 \times 6 = 18$



3 groups of 6.  
 $18 \div 6 = 3$   
↑  
Quotient

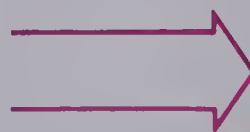
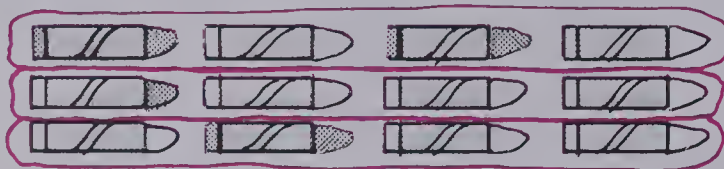
There are ■ groups of 6 in 18.

The answer to a division question is called the **quotient**.

## Exercises

Write a true multiplication sentence and a true division sentence for each array.

1.



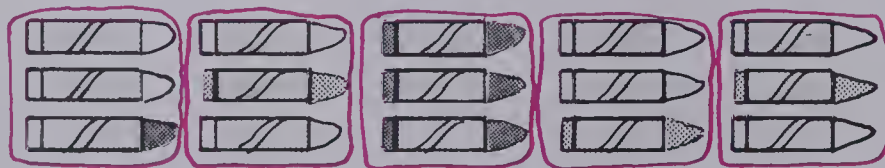
Multiplication

Division

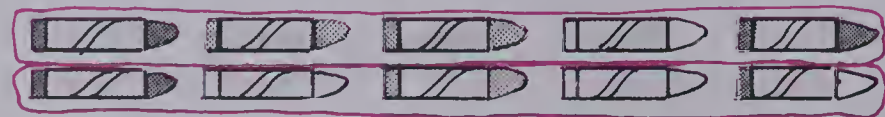
$$3 \times 4 = 12$$

$$12 \div 4 = 3$$

2.



3.



Use multiplication to help you find each quotient.

4. ■  $\times 7 = 21$ ;  $21 \div 7 = \blacksquare$

5. ■  $\times 2 = 16$ ;  $16 \div 2 = \blacksquare$

6. ■  $\times 6 = 24$ ;  $24 \div 6 = \blacksquare$

7. ■  $\times 5 = 20$ ;  $20 \div 5 = \blacksquare$

8. ■  $\times 7 = 14$ ;  $14 \div 7 = \blacksquare$

9. ■  $\times 4 = 32$ ;  $32 \div 4 = \blacksquare$

# More Multiplication and Division

Sandy already knows

$$2 \times 4 = 8.$$



Now she can write

$$8 \div 4 = 2.$$

She also knows

$$4 \times 2 = 8.$$



Now she can write

$$8 \div 2 = 4.$$



## Exercises

Write a division sentence to match each multiplication sentence.

1.  $3 \times 4 = 12$

$$4 \times 3 = 12$$



$$12 \div 4 = 3$$

$$12 \div 3 = 4$$

2.  $6 \times 3 = 18$

$$3 \times 6 = 18$$

3.  $6 \times 5 = 30$

$$5 \times 6 = 30$$

4.  $4 \times 7 = 28$

$$7 \times 4 = 28$$

5.  $9 \times 3 = 27$

$$3 \times 9 = 27$$

Write another multiplication sentence and two division sentences to match each.

6.  $7 \times 6 = 42$

7.  $3 \times 9 = 27$

8.  $2 \times 8 = 16$

9.  $6 \times 2 = 12$

10.  $7 \times 4 = 28$

11.  $5 \times 6 = 30$

12.  $8 \times 4 = 32$

13.  $7 \times 3 = 21$

Complete each. Write one multiplication and two division sentences to match each.

14.  $6 \times 8 = \blacksquare$

15.  $10 \times 3 = \blacksquare$

16.  $5 \times 7 = \blacksquare$

17.  $6 \times 7 = \blacksquare$

18.  $4 \times 9 = \blacksquare$

19.  $7 \times 8 = \blacksquare$

20.  $6 \times 4 = \blacksquare$

21.  $5 \times 5 = \blacksquare$

22.  $5 \times 9 = \blacksquare$

23.  $3 \times 7 = \blacksquare$

24.  $9 \times 8 = \blacksquare$

25.  $6 \times 9 = \blacksquare$

# Division Facts

Find each quotient. Remember that multiplication can help you.

## 1. Two Facts

(a)  $8 \div 2$

(b)  $14 \div 2$

(c)  $4 \div 2$

(d)  $6 \div 2$

(e)  $18 \div 2$

(f)  $10 \div 2$

(g)  $16 \div 2$

(h)  $12 \div 2$

## 2. Three Facts

(a)  $12 \div 3$

(b)  $21 \div 3$

(c)  $15 \div 3$

(d)  $6 \div 3$

(e)  $27 \div 3$

(f)  $18 \div 3$

(g)  $24 \div 3$

(h)  $9 \div 3$

## 3. Four Facts

(a)  $12 \div 4$

(b)  $20 \div 4$

(c)  $36 \div 4$

(d)  $28 \div 4$

(e)  $8 \div 4$

(f)  $32 \div 4$

(g)  $16 \div 4$

(h)  $24 \div 4$

## 4. Five Facts

(a)  $20 \div 5$

(b)  $35 \div 5$

(c)  $10 \div 5$

(d)  $45 \div 5$

(e)  $30 \div 5$

(f)  $15 \div 5$

(g)  $40 \div 5$

(h)  $25 \div 5$

Divide.

5.  $12 \div 3$

6.  $20 \div 5$

7.  $24 \div 3$

8.  $10 \div 2$

9.  $45 \div 5$

10.  $14 \div 2$

11.  $18 \div 3$

12.  $28 \div 4$

13.  $32 \div 4$

14.  $16 \div 4$

15.  $21 \div 3$

16.  $15 \div 3$

17.  $20 \div 4$

18.  $30 \div 3$

19.  $24 \div 4$

20.  $30 \div 5$

21.  $18 \div 2$

22.  $36 \div 4$

23.  $35 \div 5$

24.  $12 \div 2$

25.  $40 \div 5$

26.  $12 \div 4$

27.  $25 \div 5$

28.  $20 \div 2$

29.  $27 \div 3$

30.  $16 \div 2$

31.  $50 \div 5$

32.  $14 \div 2$

33.  $40 \div 4$

34.  $15 \div 5$



# Division Facts

Complete these tables.

1. Divide by 2

16	8
4	2
12	■
18	■
6	■
14	■
10	■
8	■

2. Divide by 5

20	4
10	■
15	■
35	■
25	■
40	■
45	■
30	■

3. Divide by 3

21	7
6	■
15	■
24	■
12	■
18	■
9	■
27	■

Divide.

4.  $3 \overline{)18}$

5.  $5 \overline{)30}$

6.  $4 \overline{)28}$

7.  $2 \overline{)12}$

8.  $4 \overline{)20}$

9.  $3 \overline{)9}$

10.  $4 \overline{)16}$

11.  $5 \overline{)15}$

12.  $5 \overline{)45}$

13.  $4 \overline{)24}$

14.  $3 \overline{)27}$

15.  $5 \overline{)40}$

16.  $4 \overline{)36}$

17.  $3 \overline{)12}$

18.  $4 \overline{)8}$

19.  $3 \overline{)3}$

20.  $4 \overline{)32}$

21.  $5 \overline{)35}$

22.  $4 \overline{)4}$

23.  $5 \overline{)5}$

24.  $5 \overline{)20}$

25.  $2 \overline{)18}$

26.  $3 \overline{)6}$

27.  $5 \overline{)10}$

28.  $2 \overline{)2}$

29.  $4 \overline{)40}$

30.  $3 \overline{)21}$

31.  $4 \overline{)12}$

32.  $2 \overline{)20}$

33.  $3 \overline{)15}$

34.  $2 \overline{)16}$

35.  $5 \overline{)5}$

36.  $3 \overline{)24}$

37.  $4 \overline{)20}$

38.  $5 \overline{)25}$

★ 39. Find the missing numbers.

A	18	12	20	■	15	■	35	27	14	■
B	2	■	5	2	■	4	5	■	2	4
Quotient	9	3	■	8	5	6	■	9	■	8

# One — A Special Number in Division



5 groups of 1.

$$5 \times 1 = 5$$

$$5 \div 1 = \blacksquare$$

What happens when you divide by 1?

$$2 \times 1 = 2$$

$$2 \div 1 = 2$$

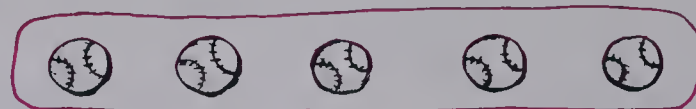
$$\blacksquare \times 1 = 3$$

$$3 \div 1 = \blacksquare$$

$$\blacksquare \times 1 = 4$$

$$4 \div 1 = \blacksquare$$

A number divided by 1 remains unchanged.



1 group of 5.

$$1 \times 5 = 5$$

$$5 \div 5 = \blacksquare$$

What happens when a number is divided by itself?

$$1 \times 2 = 2$$

$$2 \div 2 = 1$$

$$\blacksquare \times 3 = 3$$

$$3 \div 3 = \blacksquare$$

$$\blacksquare \times 4 = 4$$

$$4 \div 4 = \blacksquare$$

When a number is divided by itself, the quotient is 1.

## Exercises

Find each quotient.

1.  $3 \div 1$

2.  $2 \div 2$

3.  $9 \div 9$

4.  $8 \div 1$

5.  $6 \div 1$

6.  $4 \div 4$

7.  $1 \div 1$

8.  $27 \div 1$

9.  $7 \div 1$

10.  $5 \div 5$

11.  $6 \div 6$

12.  $17 \div 1$

13.  $23 \div 1$

14.  $15 \div 15$

15.  $32 \div 32$

16.  $93 \div 93$

17.  $85 \div 1$

18.  $12 \div 12$

19.  $68 \div 68$

20.  $126 \div 1$

21.  $16 \div 4$

22.  $18 \div 3$

23.  $36 \div 4$

24.  $27 \div 3$

25.  $24 \div 24$

26.  $45 \div 5$

27.  $9 \div 3$

28.  $10 \div 5$

29.  $32 \div 4$

30.  $35 \div 5$

# The Factory

20 candles.

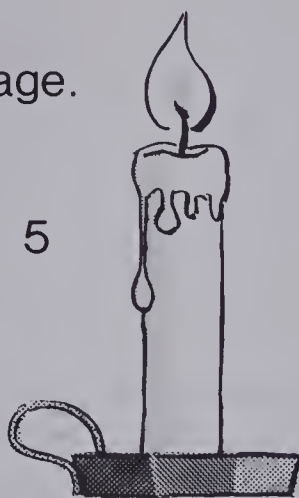
4 candles in every package.

How many packages?

$$20 \div 4 = 5$$

There are 5 packages.

This question asks:  
“How many groups?”



20 candles.

5 packages.

How many candles in each package?

$$20 \div 5 = 4$$

There are 4 candles in each package.

This question asks:  
“How many in each group?”

## Exercises

Solve. Tell which question is being asked.

1. George made 36 race cars.  
He packed 4 race cars in  
every box.  
How many boxes did he pack?

3. Brenda made 45 dolls.  
Five dolls fit in a box.  
How many boxes did Brenda  
need?

- ★ 5. One box can hold 4 large dolls or 6 small trucks.  
Brenda has 28 dolls and 42 trucks.  
How many boxes will she need to pack the dolls? the trucks?  
How many boxes will she need altogether?



2. Edna packed 27 spaceships.  
They are packed in 3 boxes.  
How many spaceships in  
each box?
4. Stan packed 32 paint kits.  
He used 4 cartons.  
How many paint kits in each  
carton?



# Dividing by 6 and 7

Maria knows

$$8 \times 6 = 48.$$

$$9 \times 7 = 63.$$



Now she can write

$$48 \div 6 = 8.$$

$$63 \div 7 = 9.$$



## Exercises

Write a division sentence to match each multiplication sentence.

1.  $4 \times 6 = 24$

2.  $5 \times 6 = 30$

3.  $6 \times 6 = 36$

4.  $7 \times 6 = 42$

5.  $8 \times 6 = 48$

6.  $9 \times 6 = 54$

7.  $4 \times 7 = 28$

8.  $5 \times 7 = 35$

9.  $6 \times 7 = 42$

10.  $7 \times 7 = 49$

11.  $8 \times 7 = 56$

12.  $9 \times 7 = 63$

Find each quotient.

### 13. Six Facts

(a)  $12 \div 6$

(b)  $24 \div 6$

(c)  $36 \div 6$

(d)  $48 \div 6$

(e)  $6 \div 6$

(f)  $54 \div 6$

(g)  $18 \div 6$

(h)  $30 \div 6$

(i)  $42 \div 6$

(j)  $60 \div 6$

### 14. Seven Facts

(a)  $21 \div 7$

(b)  $42 \div 7$

(c)  $28 \div 7$

(d)  $56 \div 7$

(e)  $63 \div 7$

(f)  $14 \div 7$

(g)  $35 \div 7$

(h)  $7 \div 7$

(i)  $49 \div 7$

(j)  $70 \div 7$

Divide.

15.  $6 \overline{)48}$

16.  $7 \overline{)42}$

17.  $6 \overline{)54}$

18.  $7 \overline{)49}$

19.  $6 \overline{)36}$

20.  $6 \overline{)18}$

21.  $7 \overline{)21}$

22.  $7 \overline{)56}$

23.  $6 \overline{)30}$

24.  $7 \overline{)35}$

25.  $6 \overline{)24}$

26.  $7 \overline{)63}$

# Dividing by 8 and 9

Marcel knows

$$9 \times 8 = 72.$$

$$7 \times 9 = 63.$$



Now he can write

$$72 \div 8 = 9.$$

$$63 \div 9 = 7.$$



## Exercises

Write a division sentence to match each multiplication sentence.

1.  $4 \times 8 = 32$

2.  $5 \times 8 = 40$

3.  $6 \times 8 = 48$

4.  $7 \times 8 = 56$

5.  $8 \times 8 = 64$

6.  $9 \times 8 = 72$

7.  $4 \times 9 = 36$

8.  $5 \times 9 = 45$

9.  $6 \times 9 = 54$

10.  $7 \times 9 = 63$

11.  $8 \times 9 = 72$

12.  $9 \times 9 = 81$

Find each quotient.

### 13. Eight Facts

(a)  $16 \div 8$

(b)  $32 \div 8$

(c)  $24 \div 8$

(d)  $40 \div 8$

(e)  $80 \div 8$

(f)  $72 \div 8$

(g)  $8 \div 8$

(h)  $56 \div 8$

(i)  $64 \div 8$

(j)  $48 \div 8$

### 14. Nine Facts

(a)  $45 \div 9$

(b)  $36 \div 9$

(c)  $90 \div 9$

(d)  $54 \div 9$

(e)  $72 \div 9$

(f)  $81 \div 9$

(g)  $18 \div 9$

(h)  $9 \div 9$

(i)  $27 \div 9$

(j)  $63 \div 9$

Divide.

15.  $8 \overline{)32}$

16.  $9 \overline{)27}$

17.  $9 \overline{)72}$

18.  $9 \overline{)63}$

19.  $8 \overline{)40}$

20.  $8 \overline{)48}$

21.  $9 \overline{)36}$

22.  $8 \overline{)56}$

23.  $9 \overline{)54}$

24.  $8 \overline{)72}$

25.  $9 \overline{)81}$

26.  $8 \overline{)64}$

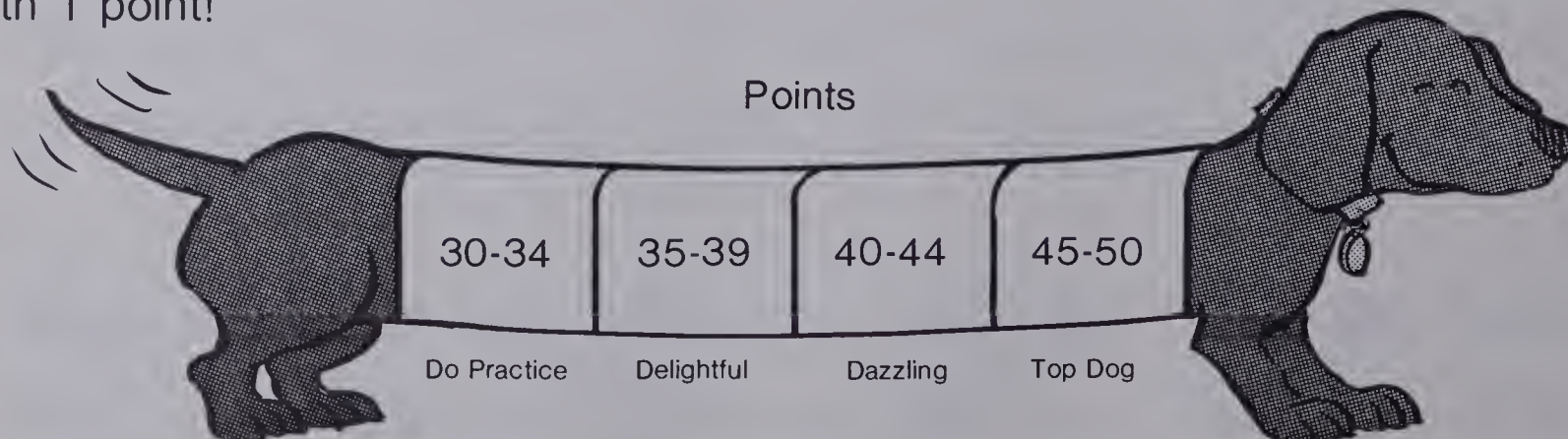
# Tune Up

Divide.

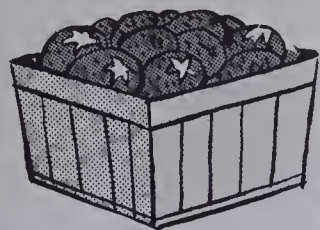
- |                        |                        |                        |                        |                        |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| 1. $30 \div 6$         | 2. $48 \div 8$         | 3. $20 \div 5$         | 4. $63 \div 9$         | 5. $16 \div 2$         |
| 6. $12 \div 3$         | 7. $49 \div 7$         | 8. $21 \div 3$         | 9. $18 \div 6$         | 10. $14 \div 2$        |
| 11. $4 \overline{)32}$ | 12. $9 \overline{)27}$ | 13. $8 \overline{)32}$ | 14. $4 \overline{)24}$ | 15. $7 \overline{)28}$ |
| 16. $8 \overline{)64}$ | 17. $2 \overline{)18}$ | 18. $9 \overline{)36}$ | 19. $6 \overline{)24}$ | 20. $4 \overline{)16}$ |
| 21. $25 \div 5$        | 22. $35 \div 7$        | 23. $18 \div 3$        | 24. $16 \div 8$        | 25. $45 \div 5$        |
| 26. $6 \overline{)48}$ | 27. $9 \overline{)45}$ | 28. $4 \overline{)28}$ | 29. $6 \overline{)36}$ | 30. $7 \overline{)63}$ |
| 31. $7 \overline{)14}$ | 32. $9 \overline{)81}$ | 33. $7 \overline{)21}$ | 34. $3 \overline{)15}$ | 35. $6 \overline{)42}$ |
| 36. $5 \overline{)35}$ | 37. $7 \overline{)42}$ | 38. $8 \overline{)72}$ | 39. $8 \overline{)56}$ | 40. $2 \overline{)10}$ |
| 41. $12 \div 4$        | 42. $54 \div 9$        | 43. $32 \div 8$        | 44. $40 \div 5$        | 45. $30 \div 5$        |
| 46. $24 \div 3$        | 47. $54 \div 6$        | 48. $72 \div 9$        | 49. $27 \div 3$        | 50. $40 \div 8$        |

The "Top Dog" Division Awards!

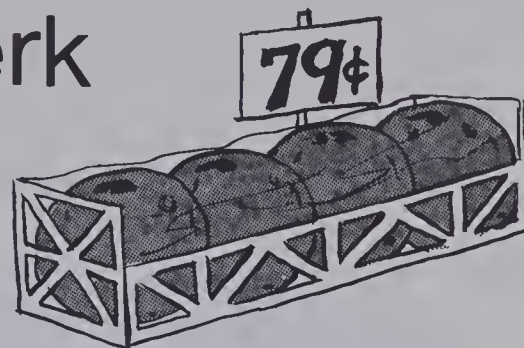
Each correct answer is  
worth 1 point!







# Grocery Store Clerk



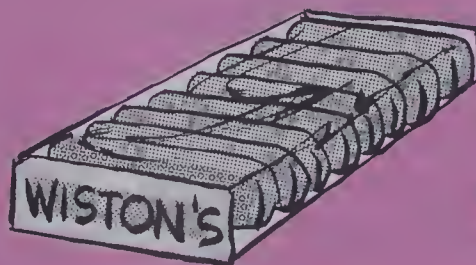
Solve these mini-stories.

1. 24 cans of soup needed.  
6 cans in each carton.  
How many cartons needed?
2. 48 dinner rolls needed.  
Each package has 6 rolls.  
How many packages needed?
3. 32 tomatoes needed.  
4 tomatoes in each package.  
How many packages needed?
4. 6 chocolate puffs in a box.  
42 chocolate puffs needed.  
How many boxes needed?
5. 35 carrots needed.  
7 carrots in each bunch.  
How many bunches needed?
6. 9 apples in a bag.  
54 apples needed.  
How many bags needed?
7. 56 bags of potato chips needed.  
8 bags in a carton.  
How many cartons needed?
8. 8 wieners in a package.  
64 wieners needed.  
How many packages needed?
9. 6 bottles in a carton.  
36 bottles needed.  
How many cartons needed?
10. 72 apples needed.  
9 apples in each bag.  
How many bags needed?

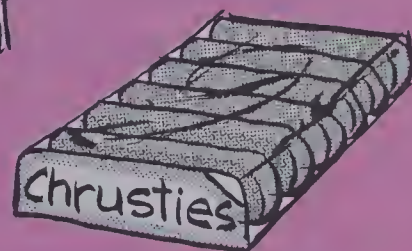
## BRAINTICKLER



Which is  
the better buy?



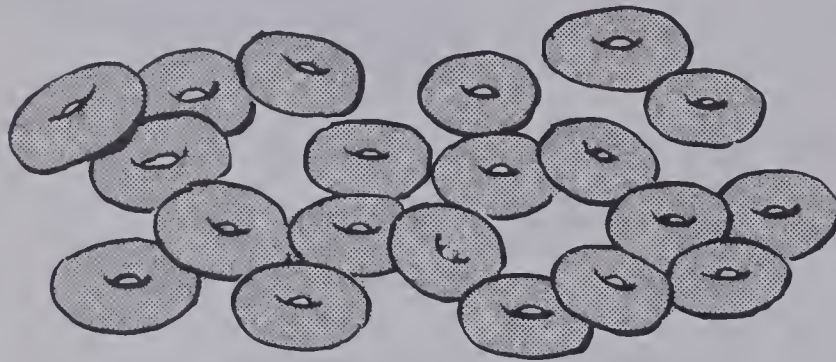
8 buns 64¢



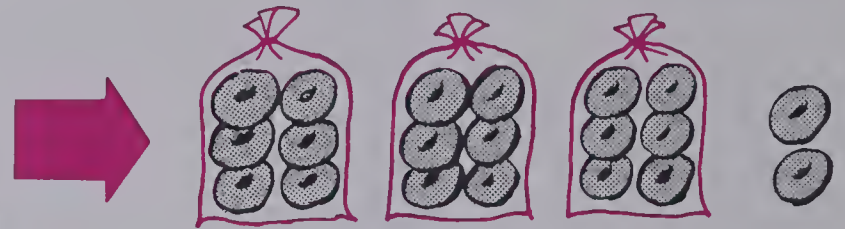
6 buns 54¢

# School Bake Sale

20 doughnuts.



3 bags of 6 each.



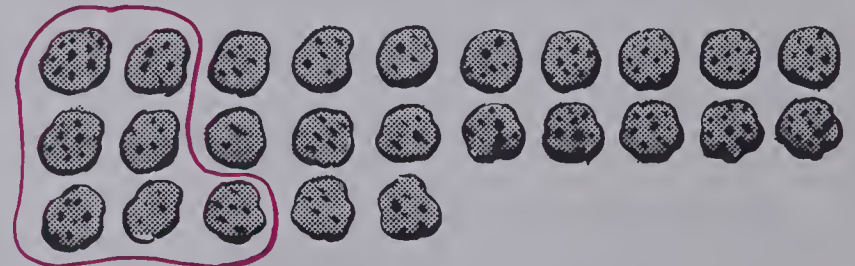
How many left over?

There are ■ doughnuts left over.

## Exercises

Draw pictures to help you answer these mini-stories.

1. 25 chocolate chip cookies.  
How many bags with 7 each?  
How many left over?



2. 32 marshmallows.  
How many bags with 5 each?  
How many left over?

4. 17 vanilla wafers.  
How many bags with 4 each?  
How many left over?

6. 20 loaves of bread needed.  
6 loaves in each box.  
How many left over?

3. 28 peanut butter squares.  
How many bags with 6 each?  
How many left over?

5. 23 oatmeal cookies.  
How many bags with 5 each?  
How many left over?

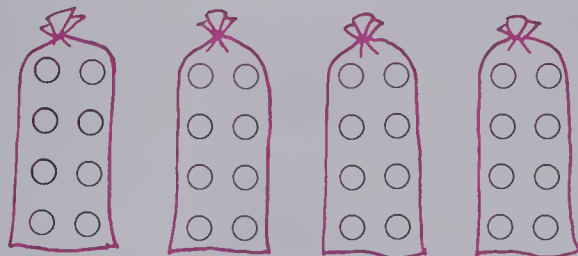
7. 30 apples needed.  
4 apples in each box.  
How many left over?

# Remainders

Lisa has 33 marbles. She puts 8 marbles in each bag.

How many bags?

How many left over?



How many groups of 8 in 33?

How many left over?

Estimate.

$$\begin{array}{r} 4 \\ 8 \overline{)33} \end{array}$$

Think:

$3 \times 8 = 24$  too few

$4 \times 8 = 32$  good

$5 \times 8 = 40$  too many

Multiply.

$$\begin{array}{r} 4 \\ 8 \overline{)33} \\ 32 \quad (4 \times 8) \end{array}$$

Subtract.

$$\begin{array}{r} 4 \\ 8 \overline{)33} \\ - 32 \\ \hline 1 \end{array} \quad \text{left over}$$

1 is the remainder.

Show the remainder.

$$\begin{array}{r} 4 \text{ R } 1 \\ 8 \overline{)33} \\ - 32 \\ \hline 1 \end{array}$$

There are ■ groups of 8 in 33 with ■ left over.

**Exercises** Divide. Show the remainder.

1. How many groups of 7 in 25?

How many left over?

$$\begin{array}{r} \quad \blacksquare \text{ R } \blacksquare \\ 7 \overline{)25} \\ - \blacksquare \blacksquare \\ \hline \blacksquare \end{array}$$

2. How many groups of 6 in 32?

How many left over?

$$\begin{array}{r} \quad \blacksquare \text{ R } \blacksquare \\ 6 \overline{)32} \\ - \blacksquare \blacksquare \\ \hline \blacksquare \end{array}$$

3.  $4 \overline{)29}$

4.  $3 \overline{)26}$

5.  $7 \overline{)45}$

6.  $6 \overline{)27}$

7.  $5 \overline{)36}$

8.  $6 \overline{)50}$

9.  $4 \overline{)35}$

10.  $9 \overline{)86}$

11.  $8 \overline{)47}$

12.  $9 \overline{)68}$

13.  $8 \overline{)75}$

14.  $7 \overline{)30}$

15.  $5 \overline{)19}$

16.  $7 \overline{)60}$

17.  $8 \overline{)60}$

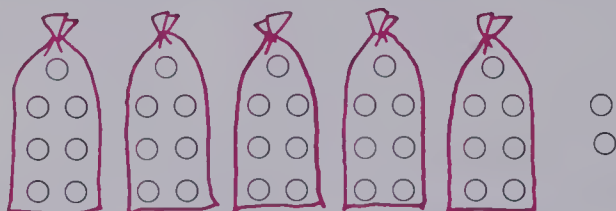


# Estimating

Conrad has 37 marbles.

He puts 7 marbles in each bag.

How many bags? How many left over?



$$\begin{array}{r} 5 \text{ R } 2 \\ 7 \overline{) 37} \\ - 35 \\ \hline 2 \end{array}$$

There are 5 bags of 7 and 2 left over.

## Exercises

Divide. Remember to estimate first.

$$\begin{array}{r} 5 \text{ R } 6 \\ 8 \overline{) 46} \\ - 40 \\ \hline 6 \end{array}$$

$$2. \quad 7 \overline{) 42} \text{ R}$$

$$3. \quad 5 \overline{) 28} \text{ R}$$

$$4. \quad 4 \overline{) 27} \text{ R}$$

$$5. \quad 3 \overline{) 19} \text{ R}$$

$$6. \quad 6 \overline{) 38} \text{ R}$$

$$7. \quad 3 \overline{) 29} \text{ R}$$

$$8. \quad 5 \overline{) 41} \text{ R}$$

$$9. \quad 6 \overline{) 40} \text{ R}$$

$$10. \quad 7 \overline{) 30} \text{ R}$$

$$11. \quad 5 \overline{) 28} \text{ R}$$

$$12. \quad 6 \overline{) 33} \text{ R}$$

$$13. \quad 4 \overline{) 18} \text{ R}$$

$$14. \quad 8 \overline{) 29} \text{ R}$$

$$15. \quad 7 \overline{) 38} \text{ R}$$

$$16. \quad 9 \overline{) 67} \text{ R}$$

$$17. \quad 8 \overline{) 37} \text{ R}$$

$$18. \quad 7 \overline{) 50} \text{ R}$$

$$19. \quad 9 \overline{) 60} \text{ R}$$

20. 32 butter tarts.  
How many bags of 5 each?  
How many left over?

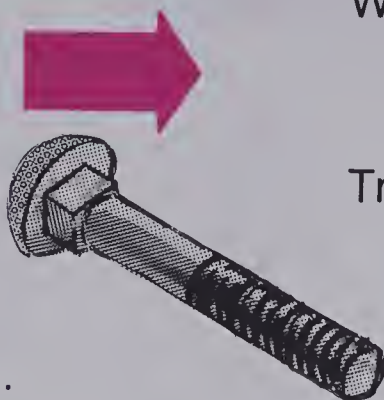
21. 34 coconut cookies.  
How many bags of 6 each?  
How many left over?

# Dividing Tens, Hundreds, and Thousands

400 bolts.  
8 bolts in each package.  
How many packages?

$$8 \overline{)400}$$

There are ■ packages of bolts .



We can use multiplication to help!

$$\blacksquare \times 8 = 400$$

Try:

$$5 \times 8 = 40 \quad \text{too few}$$

$$50 \times 8 = 400 \quad \text{correct!}$$

$$500 \times 8 = 4000 \quad \text{too many}$$

## Exercises

Copy and complete the pattern.

1.

To solve:	Use:
$4 \overline{)20}$	$\blacksquare \times 4 = 20$
$4 \overline{)200}$	$\blacksquare \times 4 = 200$
$4 \overline{)2000}$	$\blacksquare \times 4 = 2000$

2.

To solve:	Use:
$3 \overline{)18}$	$\blacksquare \times 3 = 18$
$3 \overline{)180}$	$\blacksquare \times 3 = 180$
$3 \overline{)1800}$	$\blacksquare \times 3 = 1800$

Divide. Complete the multiplication sentence that helped you.

3.  $7 \overline{)210}$

$$\blacksquare \times 7 = 210$$

4.  $8 \overline{)640}$

$$\blacksquare \times 8 = 640$$

5.  $6 \overline{)1200}$

$$\blacksquare \times 6 = 1200$$

6.  $5 \overline{)200}$

$$\blacksquare \times 5 = 200$$

7.  $8 \overline{)240}$

8.  $3 \overline{)120}$

9.  $9 \overline{)180}$

10.  $4 \overline{)160}$

11.  $7 \overline{)350}$

12.  $4 \overline{)2400}$

13.  $6 \overline{)2400}$

14.  $2 \overline{)800}$

15.  $5 \overline{)4000}$

16.  $6 \overline{)3600}$

17.  $8 \overline{)320}$

18.  $9 \overline{)360}$

19.  $5 \overline{)200}$

20.  $4 \overline{)120}$

21.  $3 \overline{)60}$

# Larger Quotients

$$164 \div 5$$



Use multiples of 10.

About how many groups of 5 in 164?

$$\begin{array}{r} 30 \\ 5 \overline{)164} \end{array}$$

Think:  $10 \times 5 = 50$

too few

$20 \times 5 = 100$

too few

$30 \times 5 = 150$

good choice!

$40 \times 5 = 200$

too many

There are about ■ groups of 5 in 164.

## Exercises

1. Write the next five multiples of 10.

10, 20, 30, 40, ■, ■, ■, ■, ■.

2.  $3 \overline{)72}$

Think:  $10 \times 3 = 30$

$20 \times 3 = 60$

$30 \times 3 = 90$

The estimate  
is 20.

3.  $3 \overline{)140}$

Think:  $30 \times 3 = \blacksquare$

$40 \times 3 = \blacksquare$

$50 \times 3 = \blacksquare$

The estimate  
is ■.

4.  $2 \overline{)185}$

Think:  $70 \times 2 = \blacksquare$

$80 \times 2 = \blacksquare$

$90 \times 2 = \blacksquare$

The estimate  
is ■.

Estimate the quotient. Use multiples of 10.

5.  $\begin{array}{r} 30 \\ 3 \overline{)90} \end{array}$

6.  $\begin{array}{r} \blacksquare \\ 4 \overline{)93} \end{array}$

7.  $\begin{array}{r} \blacksquare \\ 2 \overline{)156} \end{array}$

8.  $\begin{array}{r} \blacksquare \\ 8 \overline{)170} \end{array}$

9.  $\begin{array}{r} \blacksquare \\ 5 \overline{)114} \end{array}$

10.  $\begin{array}{r} \blacksquare \\ 6 \overline{)75} \end{array}$

11.  $\begin{array}{r} \blacksquare \\ 2 \overline{)83} \end{array}$

12.  $\begin{array}{r} \blacksquare \\ 5 \overline{)283} \end{array}$

13.  $\begin{array}{r} \blacksquare \\ 3 \overline{)158} \end{array}$

14.  $\begin{array}{r} \blacksquare \\ 7 \overline{)235} \end{array}$

15.  $\begin{array}{r} \blacksquare \\ 6 \overline{)125} \end{array}$

16.  $\begin{array}{r} \blacksquare \\ 5 \overline{)160} \end{array}$



17.  $\begin{array}{r} \blacksquare \\ 3 \overline{)23} \end{array}$

18.  $\begin{array}{r} \blacksquare \\ 7 \overline{)240} \end{array}$

19.  $\begin{array}{r} \blacksquare \\ 4 \overline{)300} \end{array}$



# Steps in Division

Estimate. 	Multiply. 	Subtract.
$\begin{array}{r} 20 \\ 3 \overline{)72} \end{array}$ <p>Use multiples of 10.</p>	$\begin{array}{r} 20 \\ 3 \overline{)72} \\ 60 \quad (3 \times 20) \end{array}$	$\begin{array}{r} 20 \\ 3 \overline{)72} \\ 60 \\ \hline 12 \end{array}$
$\begin{array}{r} 4 \\ 20 \\ 3 \overline{)72} \\ 60 \\ \hline 12 \end{array}$ <p>Use multiples of 1. <math>3 \times 4 = 12</math></p>	$\begin{array}{r} 4 \\ 20 \\ 3 \overline{)72} \\ 60 \\ \hline 12 \\ 12 \quad (3 \times 4) \end{array}$	$\begin{array}{r} 24 \text{ Quotient} \\ \hline 4 \\ 20 \\ 3 \overline{)72} \\ 60 \\ \hline 12 \\ 12 \\ \hline 0 \end{array}$

## Exercises

1.  $2 \overline{)126}$
2.  $3 \overline{)111}$
3.  $4 \overline{)144}$
4.  $5 \overline{)125}$
5.  $2 \overline{)110}$
6.  $2 \overline{)150}$
7.  $3 \overline{)165}$
8.  $4 \overline{)128}$
9.  $5 \overline{)155}$
10.  $2 \overline{)190}$
11.  $3 \overline{)186}$
12.  $4 \overline{)180}$
13.  $5 \overline{)175}$
14.  $3 \overline{)192}$
15.  $4 \overline{)168}$
16.  $3 \overline{)216}$
17.  $4 \overline{)256}$
18.  $5 \overline{)360}$
19.  $4 \overline{)324}$
20.  $4 \overline{)376}$
21.  $2 \overline{)138}$
22.  $3 \overline{)102}$
23.  $3 \overline{)75}$
24.  $4 \overline{)104}$
25.  $7 \overline{)147}$
26.  $5 \overline{)210}$
27.  $6 \overline{)84}$
28.  $7 \overline{)98}$
29.  $9 \overline{)216}$
30.  $9 \overline{)459}$

# Checking Division

Chuck divided:      Check:      9

$$\begin{array}{r} 9 \\ 3 \overline{)27} \\ \underline{27} \\ 0 \end{array}$$

$$\begin{array}{r} 9 \\ \times 3 \\ \hline 27 \end{array}$$

← Checks. →

Mary divided:      Check:      27

$$\begin{array}{r} 27 \\ 7 \overline{)189} \\ \underline{14} \phantom{0} \\ 49 \phantom{0} \\ \underline{42} \phantom{0} \\ 70 \\ \underline{70} \\ 0 \end{array}$$

$$\begin{array}{r} 27 \\ \times 5 \\ \hline 135 \end{array}$$

← Checks. →

**Exercises** Divide. Check.

1.  $6 \overline{)96}$

2.  $5 \overline{)125}$

3.  $3 \overline{)219}$

4.  $4 \overline{)184}$

5.  $2 \overline{)164}$

6.  $7 \overline{)154}$

7.  $8 \overline{)96}$

8.  $9 \overline{)108}$

9.  $7 \overline{)91}$

10.  $6 \overline{)204}$

11.  $8 \overline{)368}$

12.  $9 \overline{)468}$

13.  $6 \overline{)456}$

14.  $7 \overline{)644}$

15.  $9 \overline{)666}$

## BRAINTICKLER

There is a secret path through this maze.

Find every quotient, then look for the path!

START

$8 \div 8$	$12 \div 6$	$5 \div 5$	$30 \div 6$	$12 \div 3$
$30 \div 6$	$21 \div 7$	$27 \div 3$	$42 \div 6$	$56 \div 7$
$81 \div 9$	$36 \div 9$	$20 \div 4$	$48 \div 8$	$18 \div 2$
$64 \div 8$	$2 \div 2$	$6 \div 3$	$15 \div 3$	$70 \div 10$

FINISH

# Steps in Division

Let's look at Brenda's work.

$$\begin{array}{r} 20 \\ 6 \overline{)158} \\ - 120 \\ \hline 38 \end{array}$$

*Steps*

- (a) Estimate?
- (b)  $6 \times 20 = \blacksquare$ .
- (c)  $158 - 120 = \blacksquare$ .

$$\begin{array}{r} 26 \\ \hline 6 \overline{)158} \\ - 120 \\ \hline 38 \\ - 36 \\ \hline 2 \end{array}$$

2 remainder

*Steps*

- (a) Second estimate?
- (b)  $6 \times 6 = \blacksquare$ .
- (c)  $38 - 36 = \blacksquare$ .
- (d)  $20 + 6 = \blacksquare$ .
- (e) Remainder?

## Exercises

Find the quotient and remainder.

1.  $4 \overline{)137}$
2.  $3 \overline{)237}$
3.  $5 \overline{)170}$
4.  $3 \overline{)82}$
5.  $4 \overline{)92}$
6.  $5 \overline{)137}$
7.  $2 \overline{)119}$
8.  $4 \overline{)213}$
9.  $2 \overline{)148}$
10.  $3 \overline{)125}$
11.  $3 \overline{)164}$
12.  $2 \overline{)137}$
13.  $4 \overline{)249}$
14.  $4 \overline{)167}$
15.  $5 \overline{)156}$
16.  $5 \overline{)258}$
17.  $2 \overline{)113}$
18.  $3 \overline{)226}$
19.  $4 \overline{)129}$
20.  $6 \overline{)247}$
21.  $7 \overline{)295}$
22.  $9 \overline{)289}$
23.  $6 \overline{)266}$
24.  $8 \overline{)253}$
25.  $7 \overline{)359}$
26.  $6 \overline{)429}$
27.  $8 \overline{)409}$
28.  $9 \overline{)647}$
29.  $7 \overline{)577}$
30.  $8 \overline{)666}$
31.  $7 \overline{)289}$
32.  $8 \overline{)444}$
33.  $9 \overline{)555}$
34.  $7 \overline{)333}$
35.  $8 \overline{)777}$



# A Short Form for Division

## Short Form

$$\begin{array}{r} 4 \\ 3 \overline{)136} \\ \underline{120} \\ 16 \end{array}$$

Estimate 40.  
Write 4 in the  
ten's place.

$$\begin{array}{r} 45 \\ 3 \overline{)136} \\ \underline{120} \\ 16 \\ 15 \end{array}$$

Estimate 5.  
Write 5 in the  
one's place.  
Show remainder.

1 R

## Exercises

Help Sandy with these *short forms*. Copy and complete.

$$\begin{array}{r} 6 \blacksquare \\ 2 \overline{)131} \\ \underline{120} \\ \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$\begin{array}{r} 7 \blacksquare \\ 5 \overline{)368} \\ \underline{350} \\ \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$\begin{array}{r} 38 \\ 4 \overline{)153} \\ \underline{120} \\ \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$\begin{array}{r} \blacksquare \blacksquare \\ 3 \overline{)225} \\ \underline{\blacksquare \blacksquare \blacksquare} \\ \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$5. \quad 2 \overline{)165}$$

$$6. \quad 3 \overline{)145}$$

$$7. \quad 2 \overline{)143}$$

$$8. \quad 3 \overline{)137}$$

$$9. \quad 4 \overline{)175}$$

$$10. \quad 5 \overline{)168}$$

$$11. \quad 4 \overline{)113}$$

$$12. \quad 5 \overline{)243}$$

$$13. \quad 6 \overline{)176}$$

$$14. \quad 4 \overline{)222}$$

$$15. \quad 4 \overline{)142}$$

$$16. \quad 5 \overline{)188}$$

$$17. \quad 6 \overline{)185}$$

$$18. \quad 3 \overline{)146}$$

$$19. \quad 5 \overline{)208}$$

$$20. \quad 3 \overline{)221}$$

$$21. \quad 4 \overline{)225}$$

$$22. \quad 6 \overline{)267}$$

$$23. \quad 5 \overline{)231}$$

$$24. \quad 4 \overline{)154}$$

$$25. \quad 5 \overline{)\$5.55}$$

$$26. \quad 4 \overline{)\$8.48}$$

$$27. \quad 4 \overline{)\$4.16}$$

$$28. \quad 6 \overline{)\$6.96}$$

$$29. \quad 3 \overline{)\$8.46}$$

# Practising the Short Form

253 "Chocolate Delights".

6 in each box.

How many boxes?

How many left over?



$$\begin{array}{r} 42 \\ 6 \overline{)253} \\ \underline{240} \\ 13 \\ \underline{12} \\ 1 \text{ R} \end{array}$$

What estimates were made?

There are ■ boxes of "Chocolate Delights" with ■ left over.

## Exercises

Complete these short forms. Estimates are important.

$$\begin{array}{r} 4 \blacksquare \\ 4 \overline{)187} \\ \underline{160} \\ 27 \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$\begin{array}{r} \blacksquare \blacksquare \\ 5 \overline{)216} \\ \underline{200} \\ 16 \\ \blacksquare \blacksquare \\ \hline \blacksquare \text{ R} \end{array}$$

$$\begin{array}{r} \blacksquare \blacksquare \\ 6 \overline{)273} \\ \underline{\blacksquare \blacksquare \blacksquare} \\ \blacksquare \blacksquare \\ \underline{\blacksquare \blacksquare} \\ \blacksquare \text{ R} \end{array}$$

4.  $2 \overline{)175}$

5.  $4 \overline{)271}$

6.  $4 \overline{)219}$

7.  $3 \overline{)247}$

8.  $3 \overline{)116}$

9.  $5 \overline{)374}$

10.  $7 \overline{)234}$

11.  $4 \overline{)253}$

12.  $2 \overline{)173}$

13.  $6 \overline{)137}$

14.  $5 \overline{)126}$

15.  $6 \overline{)322}$

16.  $7 \overline{)321}$

17.  $3 \overline{)224}$

18.  $8 \overline{)435}$

19.  $7 \overline{)251}$

20.  $8 \overline{)319}$

21.  $9 \overline{)296}$

22.  $7 \overline{)366}$

23.  $9 \overline{)379}$

24.  $6 \overline{)\$6.84}$

25.  $7 \overline{)\$3.91}$

26.  $9 \overline{)\$3.15}$

27.  $8 \overline{)\$3.60}$

28.  $5 \overline{)\$4.70}$

# Other Special Numbers in Division

50 boxes of Crunchies  
on the shelf in 10 rows.  
How many boxes in each row?

$$50 \div 10 = \blacksquare$$

Use multiplication to help.

$$10 \times \blacksquare = 50$$

$$10 \times 5 = 50$$

There are  $\blacksquare$  boxes in each row.

## Exercises

Complete the charts.

1. Since I know:	Then I know:
$10 \times 3 = 30$	$30 \div 10 = 3$
$100 \times \blacksquare = 600$	$600 \div 100 = \blacksquare$
$1000 \times \blacksquare = 8000$	$8000 \div 1000 = \blacksquare$
$10 \times \blacksquare = 500$	$500 \div 10 = \blacksquare$
$100 \times \blacksquare = 9000$	$9000 \div 100 = \blacksquare$
$1000 \times \blacksquare = 3000$	$3000 \div 1000 = \blacksquare$

2. Solve:	Use:
$70 \div 10 = \blacksquare$	$10 \times \blacksquare = 70$
$600 \div 10 = \blacksquare$	$10 \times \blacksquare = 600$
$400 \div 100 = \blacksquare$	$100 \times \blacksquare = 400$
$2000 \div 100 = \blacksquare$	$100 \times \blacksquare = 2000$
$6000 \div 1000 = \blacksquare$	$1000 \times \blacksquare = 6000$
$7000 \div 10 = \blacksquare$	$10 \times \blacksquare = 7000$

Find the quotients.

3.  $3000 \div 100$

4.  $2000 \div 1000$

5.  $800 \div 10$

6.  $500 \div 100$

7.  $40 \div 10$

8.  $4000 \div 1000$

9.  $2000 \div 10$

10.  $8000 \div 100$

11.  $900 \div 10$

12.  $600 \div 10$

13.  $7000 \div 100$

14.  $5000 \div 10$

15.  $300 \div 100$

★ 16.  $44\,000 \div 100$

★ 17.  $41\,200 \div 100$



# Division with Zero

3 goldfish bowls.

No goldfish altogether.

How many goldfish in each bowl?

There are ■ goldfish in each bowl.



$$0 \div 3 = 0$$

What is the quotient when zero is divided by any number?

$$0 \times 1 = 0$$

$$0 \div 1 = 0$$

$$0 \times 2 = 0$$

$$0 \div 2 = \blacksquare$$

$$0 \times 10 = 0$$

$$0 \div 10 = \blacksquare$$

We cannot divide by zero!

$$\blacksquare \times 0 = 2 \text{ has no solution.}$$

$$2 \div 0 = \blacksquare \text{ has no solution.}$$

When zero is divided by any number (except 0), the quotient is zero.

We cannot divide by zero.

$$5 \div 0 \text{ has no answer.}$$

## Exercises

Solve where possible.

1.  $0 \times 1 = \blacksquare$

2.  $7 \div 0 = \blacksquare$

3.  $6 \times 0 = \blacksquare$

4.  $0 \div 3 = \blacksquare$

5.  $14 \div 0 = \blacksquare$

6.  $12 \div 3 = \blacksquare$

7.  $0 \times 9 = \blacksquare$

8.  $0 \div 16 = \blacksquare$

9.  $3 \times 8 = \blacksquare$

10.  $7 \times 9 = \blacksquare$

11.  $54 \div 6 = \blacksquare$

12.  $12 \div 0 = \blacksquare$

13.  $8 \times 0 = \blacksquare$

14.  $0 \div 9 = \blacksquare$

15.  $16 \div 0 = \blacksquare$

16.  $0 \div 25 = \blacksquare$

17.  $9 \times 9 = \blacksquare$

18.  $8 \times 8 = \blacksquare$

19.  $7 \times 9 = \blacksquare$

20.  $54 \div 9 = \blacksquare$

# Welcome to the Multiplication Olympics

Each correct answer is worth 1 point!



Medals for each event.

Gold Medal 14-15 points

Silver Medal 12-13 points

Bronze Medal 10-11 points

## Multiplication Sprint!

1.  $5 \times 3$

2.  $4 \times 7$

3.  $5 \times 9$

4.  $3 \times 6$

5.  $8 \times 4$

6. 
$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$$

11.  $5 \times 5$

12. 
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

13.  $4 \times 6$

14. 
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

15.  $8 \times 8$

## Multiplication High Jump!

1. 
$$\begin{array}{r} 28 \\ \times 2 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 35 \\ \times 5 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 24 \\ \times 3 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 77 \\ \times 6 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 53 \\ \times 4 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 357 \\ \times 2 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 428 \\ \times 4 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 568 \\ \times 3 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 217 \\ \times 8 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 453 \\ \times 5 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 36 \\ \times 3 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 337 \\ \times 5 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 64 \\ \times 9 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 135 \\ \times 7 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 52 \\ \times 8 \\ \hline \end{array}$$

# Welcome to the Division Olympics

Each correct answer is worth 1 point!



Medals for each event.

Gold Medal	22-25 points
Silver Medal	19-21 points
Bronze Medal	16-18 points

## Division Dash!

1.  $18 \div 3$
2.  $30 \div 5$
3.  $56 \div 7$
4.  $32 \div 8$
5.  $16 \div 2$
6.  $3 \overline{)27}$
7.  $2 \overline{)8}$
8.  $6 \overline{)42}$
9.  $5 \overline{)40}$
10.  $9 \overline{)45}$
11.  $21 \div 7$
12.  $4 \overline{)28}$
13.  $36 \div 6$
14.  $7 \overline{)49}$
15.  $24 \div 3$
16.  $4 \overline{)32}$
17.  $7 \overline{)28}$
18.  $30 \div 5$
19.  $3 \overline{)30}$
20.  $30 \div 6$
21.  $56 \div 8$
22.  $5 \overline{)35}$
23.  $24 \div 4$
24.  $8 \overline{)64}$
25.  $60 \div 6$

## Division Long Distance Run! Some have remainders!


1.  $2 \overline{)52}$
2.  $3 \overline{)48}$
3.  $5 \overline{)63}$
4.  $3 \overline{)52}$
5.  $6 \overline{)84}$
6.  $6 \overline{)117}$
7.  $5 \overline{)129}$
8.  $6 \overline{)156}$
9.  $4 \overline{)148}$
10.  $6 \overline{)141}$
11.  $7 \overline{)91}$
12.  $4 \overline{)114}$
13.  $5 \overline{)57}$
14.  $8 \overline{)184}$
15.  $3 \overline{)72}$
16.  $5 \overline{)175}$
17.  $3 \overline{)139}$
18.  $7 \overline{)166}$
19.  $4 \overline{)128}$
20.  $6 \overline{)180}$
21.  $7 \overline{)149}$
22.  $4 \overline{)151}$
23.  $5 \overline{)135}$
24.  $6 \overline{)157}$
25.  $3 \overline{)189}$



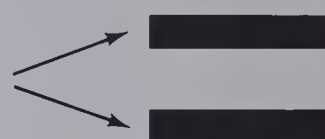
# Chapter Test

1. Write *two* division sentences for each multiplication sentence.

(a)

$$3 \times 4 = 12$$


(b)

$$7 \times 5 = 35$$


2. Divide.

(a)  $18 \div 18$

(b)  $25 \div 1$

(c)  $72 \div 8$

(d)  $0 \div 18$

3. Divide. Some have remainders.

(a)  $37 \div 5$

(b)  $29 \div 7$

(c)  $33 \div 6$

(d)  $19 \div 4$

(e)  $3000 \div 10$

(f)  $5 \overline{)450}$

(g)  $4 \overline{)120}$

(h)  $9 \overline{)270}$

(i)  $100 \overline{)500}$

(j)  $8 \overline{)240}$

(k)  $700 \div 10$

(l)  $8000 \div 100$

(m)  $700 \div 10$

(n)  $9000 \div 10$

4. Divide. Use the short form.

(a)  $7 \overline{)236}$

(b)  $3 \overline{)252}$

(c)  $5 \overline{)425}$

(d)  $6 \overline{)375}$

(e)  $8 \overline{)336}$

(f)  $9 \overline{)743}$

(g)  $4 \overline{)311}$

(h)  $5 \overline{)365}$

(i)  $5 \overline{)654}$

(j)  $7 \overline{)\$7.84}$

5. Solve.

(a) 300 jars of Softy skin cream.  
10 rows of jars.  
How many jars in each row?

(b) 314 tubes of Bright toothpaste.  
Room for 6 rows.  
How many tubes in each row?  
How many left over?

# Cumulative Review

1. Start:



Trace the seventh shape.

2. Add.

(a)  $54 + 23$     (b)  $235 + 48$     (c)  $77 + 196$     (d)  $3 + (7 + 5) = \blacksquare$

$$\begin{array}{r} 5 \\ 6 \\ + 7 \\ \hline \end{array}$$

$$\begin{array}{r} 187 \\ + 412 \\ \hline \end{array}$$

$$\begin{array}{r} 2014 \\ + 3045 \\ \hline \end{array}$$

$$\begin{array}{r} 45\,863 \\ + 16\,972 \\ \hline \end{array}$$

3. Subtract.

$$\begin{array}{r} 16 \\ - 8 \\ \hline \end{array}$$

$$\begin{array}{r} 23 \\ - 8 \\ \hline \end{array}$$

$$\begin{array}{r} 83 \\ - 43 \\ \hline \end{array}$$

$$\begin{array}{r} 601 \\ - 254 \\ \hline \end{array}$$

$$\begin{array}{r} 30\,460 \\ - 15\,945 \\ \hline \end{array}$$

4. How many in the ten's place?    2345

5. Use  $>$ ,  $=$ , or  $<$ .

$$5234 \bullet 5311$$

6. Rewrite using our numerals.

(a) XXII

(b) CL

7. Use a ruler to measure in millimetres.



8. Multiply.

$$\begin{array}{r} 387 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 454 \\ \times 8 \\ \hline \end{array}$$

9. Divide.

$$(a) \quad 6 \overline{)456}$$

$$(b) \quad 8 \overline{)771}$$

# Chapter 5

# Fractions and Decimals

Measurement

Money





# Fractions

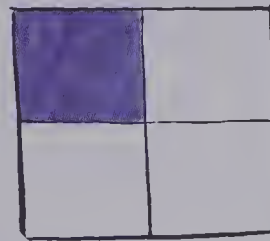
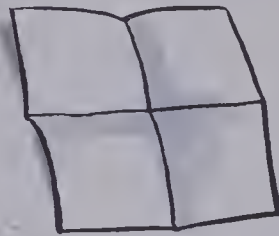
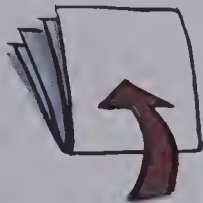
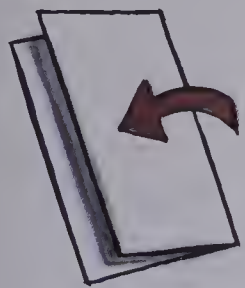
Fractions tell us about parts of things.

Fold a sheet  
of paper.

Fold again.

Open.

Colour one  
part blue.



$$\frac{1}{4}$$

(numerator)  
is blue.  
(denominator)

## Exercises

Write a fraction to tell what part is coloured.

1. How many blue parts?  $\longrightarrow$   $\frac{\blacksquare}{\blacktriangle}$   
How many equal parts?  $\longrightarrow$

is blue.



2. How many red parts?  $\longrightarrow$   $\frac{\blacksquare}{\blacktriangle}$   
How many equal parts?  $\longrightarrow$

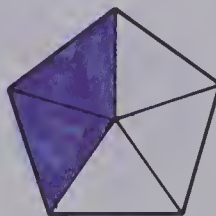
is red.



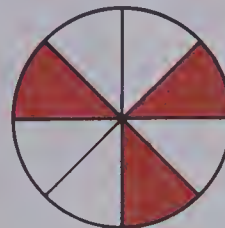
3.



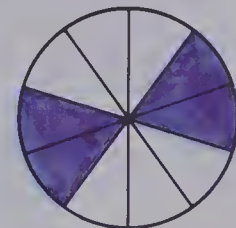
4.



5.



6.



Write the fraction for each name.

7. two thirds

8. one fourth

9. three fifths

10. five eighths

Name the numerator and the denominator in each fraction.

11.  $\frac{3}{4}$

12.  $\frac{1}{6}$

13.  $\frac{3}{10}$

14.  $\frac{7}{8}$

# Naming Fractions



$\frac{1}{3}$  of the region  
is shaded.



$\frac{2}{6}$  of the region  
is shaded.

$\frac{1}{3}$  and  $\frac{2}{6}$  represent the same amount.

$$\frac{1}{3} = \frac{2}{6}$$

## Exercises

1.



$$\frac{2}{3} =$$



How many parts shaded?

How many parts altogether?



Is the shaded portion the same in both?

$$\frac{2}{3} = \frac{\blacksquare}{\blacktriangle}$$

2.



=



Fraction shaded

Fraction shaded

$$\frac{\blacksquare}{\blacksquare} = \frac{\blacksquare}{\blacksquare}$$

3.



=



Fraction shaded

Fraction shaded

$$\frac{\blacksquare}{\blacksquare} = \frac{\blacksquare}{\blacksquare}$$

4.



=



$$\frac{\blacksquare}{\blacksquare} = \frac{\blacksquare}{\blacksquare}$$

5.

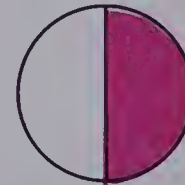


=



$$\frac{\blacksquare}{\blacksquare} = \frac{\blacksquare}{\blacksquare}$$

6.



=



$$\frac{\blacksquare}{\blacksquare} = \frac{\blacksquare}{\blacksquare}$$

# More, Less, or the Same?

Which shows more shaded area?



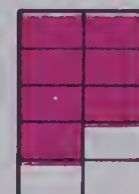
$$\frac{2}{5}$$



$$\frac{5}{10} \text{ is more.}$$



$$\frac{4}{5} \text{ is more.}$$



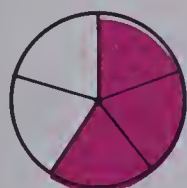
$$\frac{7}{10}$$

$>$  means **more than**.

$<$  means **less than**.

$=$  means **equal**.

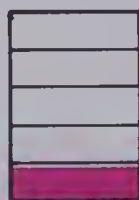
Use these symbols for each pair.



$$\frac{3}{5}$$

$>$

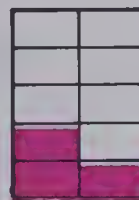
$$\frac{5}{10}$$



$$\frac{1}{5}$$

$<$

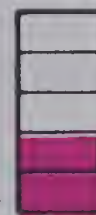
$$\frac{3}{10}$$



$$\frac{4}{10}$$

$=$

$$\frac{2}{5}$$



**Exercises** Use  $>$ ,  $=$ , and  $<$  to compare the shaded parts.

1.



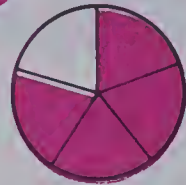
$$\frac{1}{5}$$

$\bullet$

$$\frac{3}{10}$$



2.



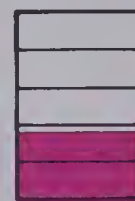
$$\frac{4}{5}$$

$\bullet$

$$\frac{8}{10}$$



3.



$$\frac{2}{5}$$

$\bullet$

$$\frac{2}{10}$$



4.



$$\frac{5}{10}$$

$\bullet$

$$\frac{3}{5}$$



5.



$$\frac{6}{10}$$

$\bullet$

$$\frac{3}{5}$$



6.



$$\frac{4}{5}$$

$\bullet$

$$\frac{4}{10}$$





# Renaming Tenths

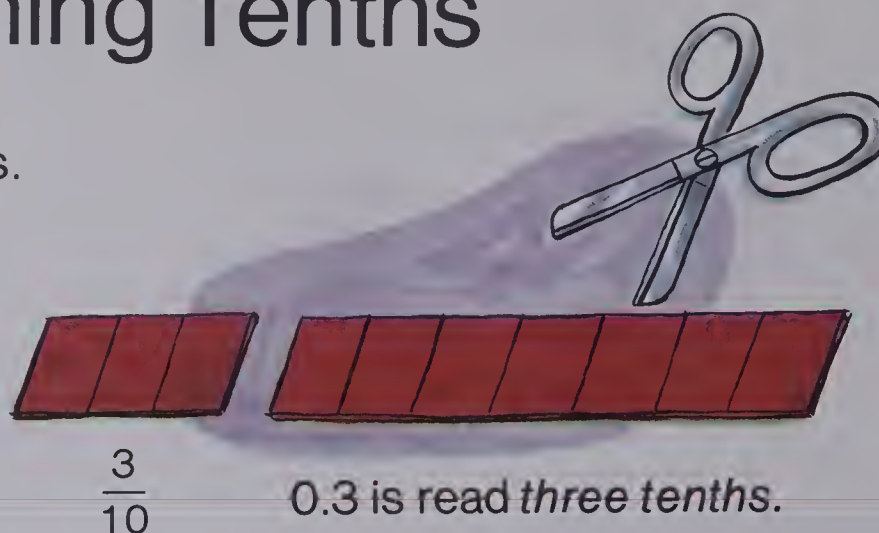
Patsy marked a board in 10 equal parts.

She cut off 3 parts.

What part did she cut off?

Another name for  $\frac{3}{10}$  is 0.3.

0.3 is the **decimal** for  $\frac{3}{10}$ .



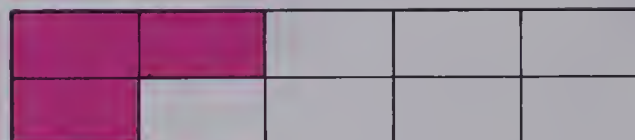
## Exercises

Write the fraction and decimal for each.

1. How many tenths are coloured?

$\frac{3}{10}$  is coloured.

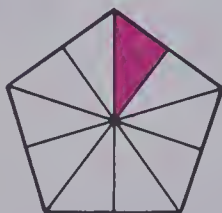
0.3 is coloured.



2. How many tenths are coloured?

Write the fraction and decimal for each coloured part.

3.



4.



5.



6. Match the fractions and decimals.

(a)

$\frac{5}{10}$

(b)

$\frac{3}{10}$

(c)

$\frac{9}{10}$

(d)

$\frac{1}{10}$

(e)

$\frac{4}{10}$

(i) 0.3

(ii) 0.4

(iii) 0.5

(iv) 0.9


(v) 0.1

7. Complete the chart for the coloured part.

Fraction	Decimal	
		
		
		

8. Match the picture and the decimal for the part that is coloured.

(a)




(i) 0.5

(ii) 0.9

(iii) 0.2

(b)




(iv) 0.6

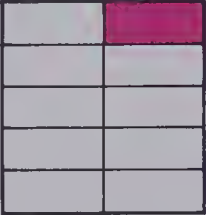
(v) 0.1

(vi) 0.4


(c)



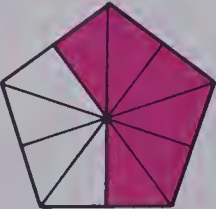
(e)



(d)



(f)



Write the decimal for each.


9. five tenths

10. seven tenths


11. nine tenths

Write the decimal.


12.




13.



14.

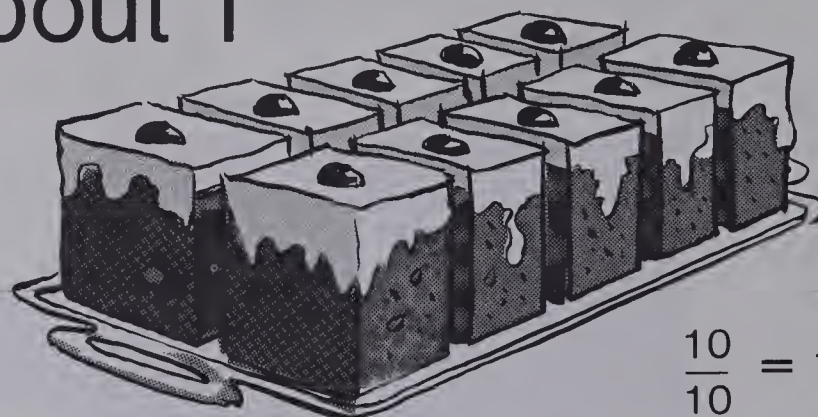


15.



# More About 1

Marcy cut a cake into tenths.  
How many pieces were there?  
How many tenths make a whole cake?



Complete:  $\frac{\blacktriangle}{10} = 1$

$$\frac{10}{10} = 1$$

## Exercises

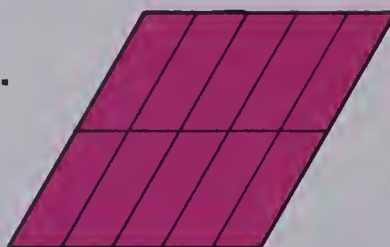
Write a number sentence for each picture.

1.



$$\frac{5}{5} = 1$$

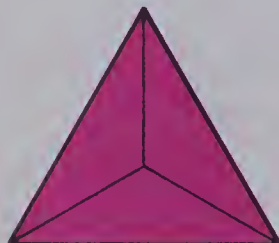
2.



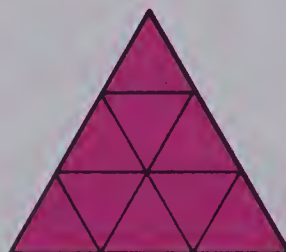
3.



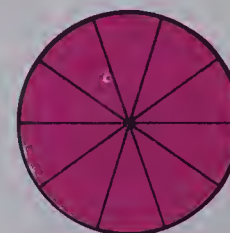
4.



5.



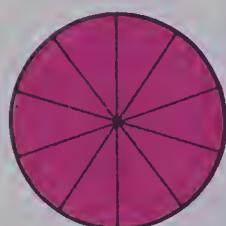
6.



Write a number sentence for each.

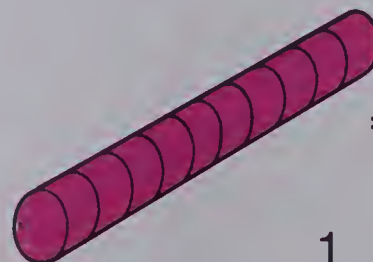
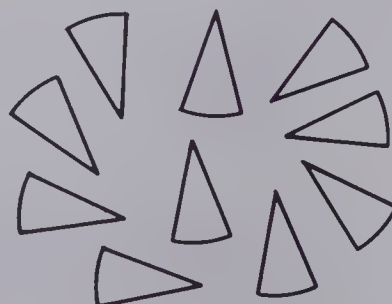
7. Mark and Sue cut their pizza into 10 parts.  
They ate all 10 parts.

8. Jill and Bill cut 1 log into firewood.  
They cut it into 10 pieces.



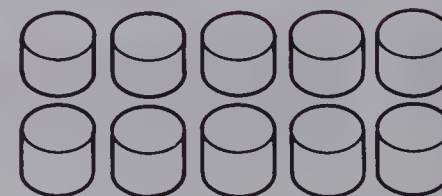
=

$$1 = \frac{\blacksquare}{\blacksquare}$$



=

$$1 = \frac{\blacktriangle}{\blacktriangle}$$





# Decimal Numbers Greater Than 1

Darcy had a pizza party.

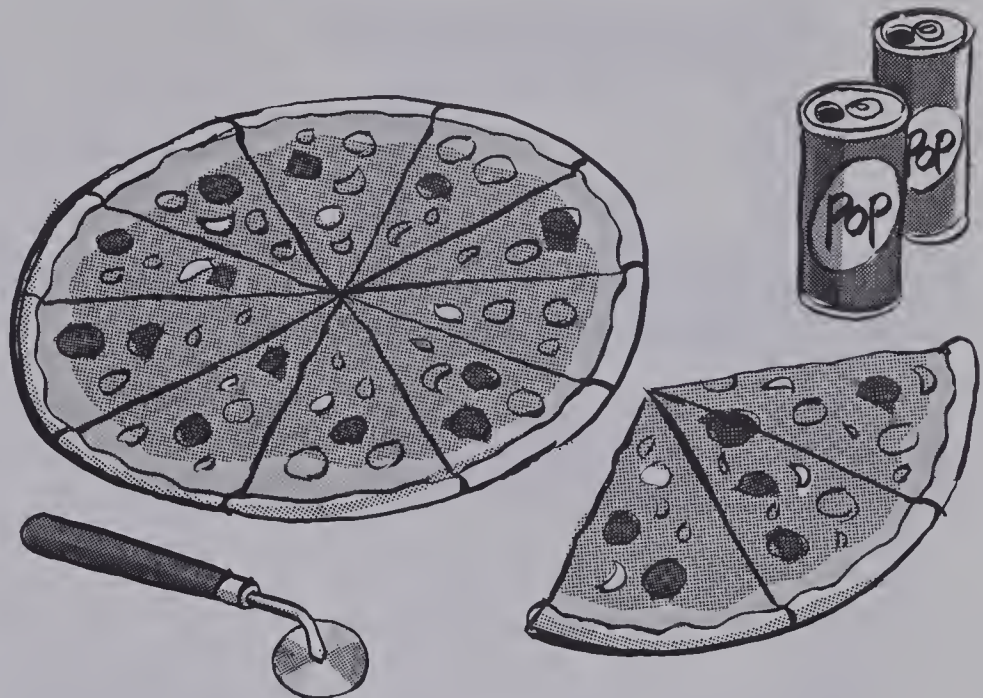
There were thirteen pieces left over.

Each piece was one tenth of a pizza.

How many wholes and how many tenths were left over?




$$\frac{13}{10} = \frac{10}{10} + \frac{3}{10}$$

= 1 one and 3 tenths      1.3



## Exercises

Complete the chart.

		Tenths	Ones and Tenths	Decimals
1.		$\frac{13}{10}$	$1\frac{3}{10}$	1.3
2.				
3.				

Write each fraction as a decimal.

4.  $\frac{19}{10}$

5.  $\frac{27}{10}$

6.  $\frac{38}{10}$

7.  $\frac{56}{10}$

8.  $\frac{79}{10}$

How many ones and how many tenths? 2.7 — 2 ones and 7 tenths

9. 3.6

10. 2.1

11. 4.5

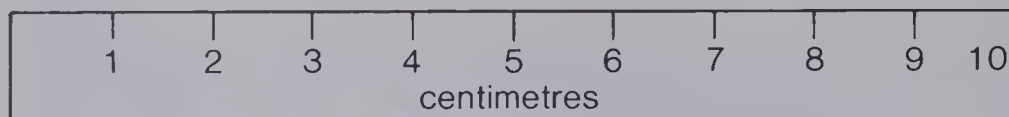
12. 0.1

13. 2.0

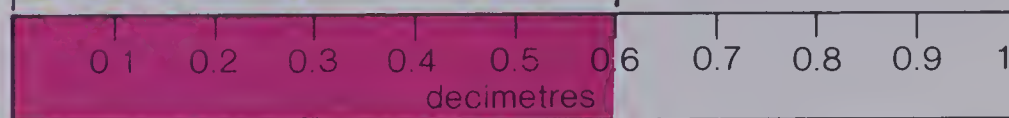
14. 0.8

15. 3.0

# The Decimetre



$$10 \text{ cm} = 1 \text{ dm}$$



A decimetre is 10 cm.

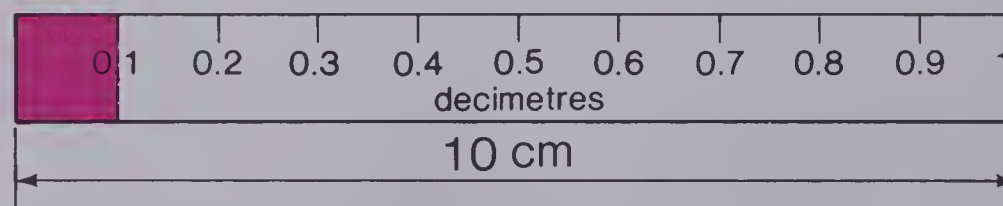
A centimetre is one tenth of a decimetre.

$$1 \text{ cm} = 0.1 \text{ dm}$$

Number of parts shaded = 6  
 Number of parts altogether = 10  
 Six tenths of a decimetre = six centimetres.  
 $0.6 \text{ dm} = 6 \text{ cm}$

The length of the grasshopper is  
 0.6 dm  
 or 6 cm.

## Exercises



1. How many centimetres in a decimetre?  
 How many parts are shaded?  
 How many parts altogether?  
 The shaded part is 0.■ of a decimetre.

Measure in centimetres. Then measure in decimetres.

2.



■ cm  
 or  
 ▲ dm

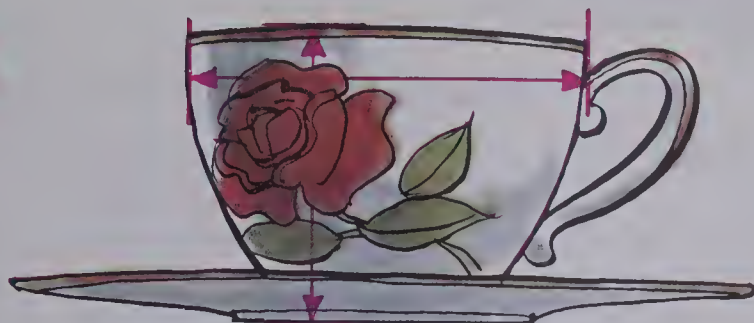
3.



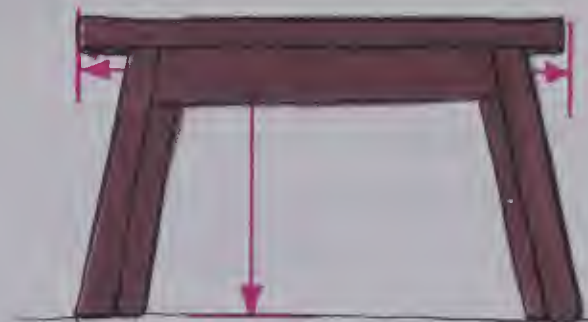
■ cm  
 or  
 ▲ dm

Write the lengths two ways.

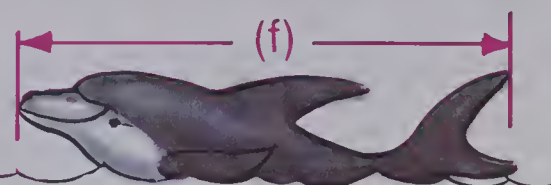
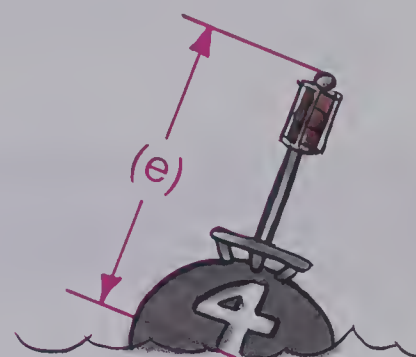
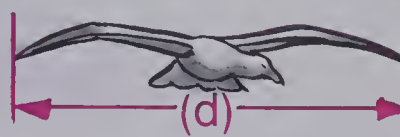
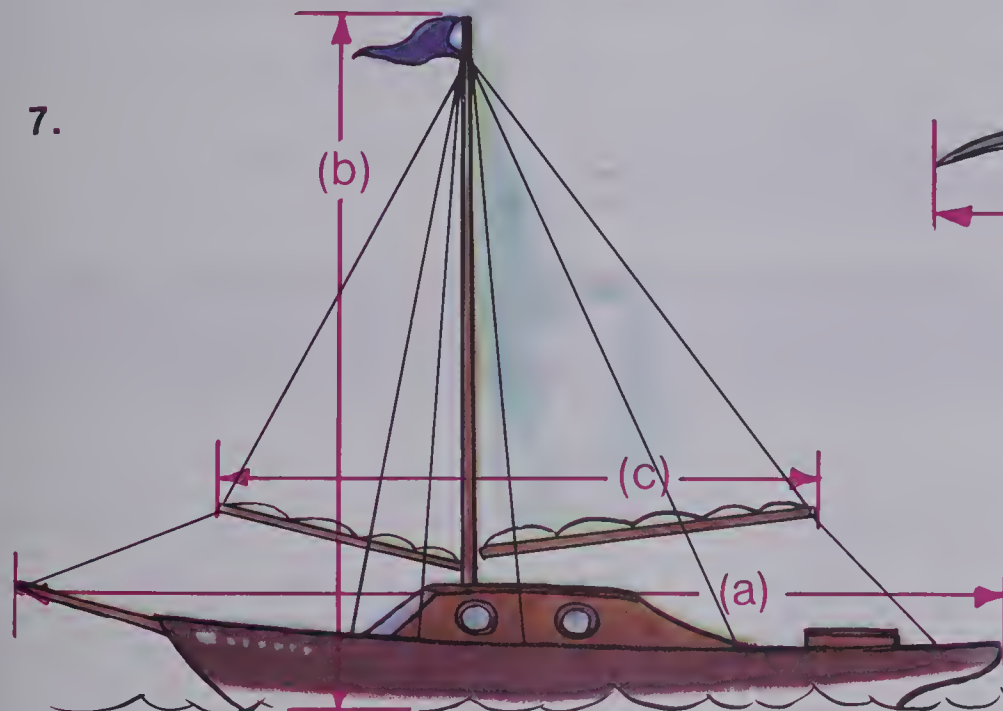
5.



6.



7.



Use your rulers.

8. Draw a segment 6 cm long.

9. Draw a segment 0.7 dm long.

10. Draw a segment 0.5 dm long.  
Draw a segment 8 cm long.  
Which is the longer segment?

11. Draw a segment 0.7 dm long.  
Draw a segment 7 cm long.  
Which is the longer segment?

12. Copy and complete.

$$1 \text{ cm} = 0.1 \text{ dm}$$

$$4 \text{ cm} = \blacksquare \text{ dm}$$

$$7 \text{ cm} = \blacksquare \text{ dm}$$

$$10 \text{ cm} = \blacksquare \text{ dm}$$

$$2 \text{ cm} = \blacksquare \text{ dm}$$

$$5 \text{ cm} = \blacksquare \text{ dm}$$

$$8 \text{ cm} = \blacksquare \text{ dm}$$

$$\star 11 \text{ cm} = \blacksquare \text{ dm}$$

$$3 \text{ cm} = \blacksquare \text{ dm}$$

$$6 \text{ cm} = \blacksquare \text{ dm}$$

$$9 \text{ cm} = \blacksquare \text{ dm}$$

$$\star 12 \text{ cm} = \blacksquare \text{ dm}$$

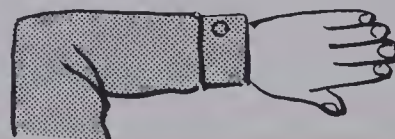
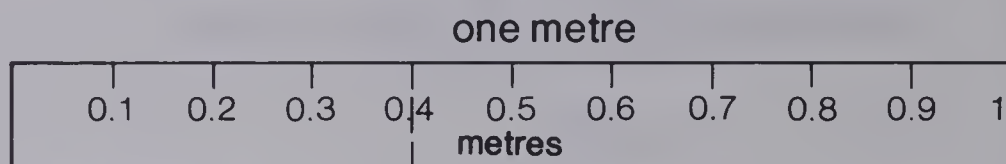
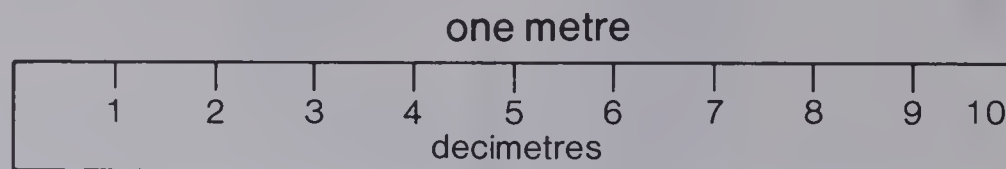


# The Metre

Make a metrestick.  
Mark it in decimetres.  
Each part is 0.1 of the metre.

$$1 \text{ dm} = 0.1 \text{ m}$$

Label your metrestick in  
tenths.



The arm is 0.4 m long.

1 dm is one tenth of a metre.

$$1 \text{ dm} = 0.1 \text{ m}$$

## Exercises

Use your metrestick marked in tenths of a metre.  
Copy and complete the chart.

1. width of this book	■ dm	0. ■ m
2. length of pen	■ dm	■ m
3. length of shoe	■ dm	■ m
4. width of desk	■ dm	■ m
5. width of door	■ dm	■ m
6. width of exercise book	■ dm	■ m
7. length of new chalk	■ dm	■ m
8. Choose 4 other items.	■ dm	■ m

Copy and complete.

9.  $3 \text{ dm} = \blacksquare \text{ tenths of a metre}$

10.  $8 \text{ dm} = \blacksquare \text{ tenths of a metre}$

11.  $5 \text{ dm} = \blacksquare \text{ m}$

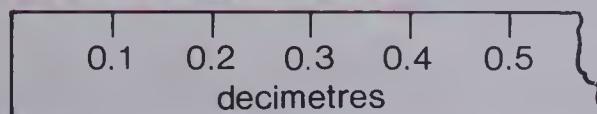
12.  $1 \text{ dm} = \blacksquare \text{ m}$

13.  $0.3 \text{ m} = \blacksquare \text{ dm}$

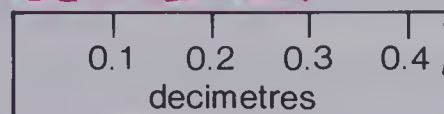
14.  $0.5 \text{ m} = \blacksquare \text{ dm}$

# Adding Decimals

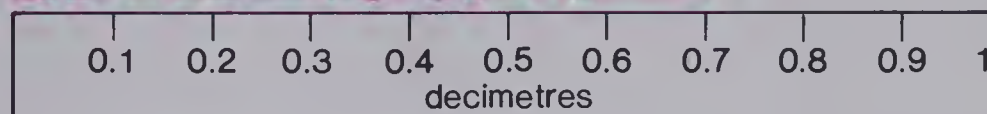
Angus measured two grasshoppers.



0.4 dm



0.3 dm



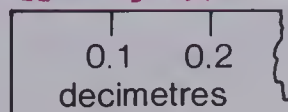
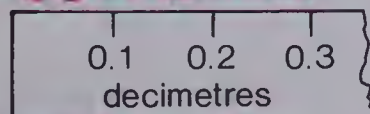
$$\begin{array}{r} 0.4 \\ + 0.3 \\ \hline 0.7 \end{array}$$

The two grasshoppers together measure 0.7 dm.

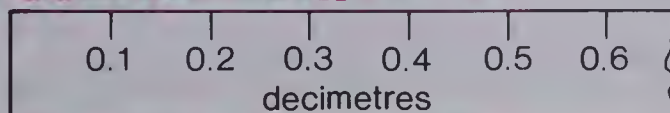
## Exercises

Calculate the total length of each pair of grasshoppers.

1.

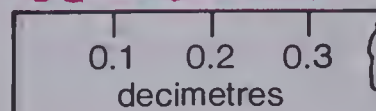
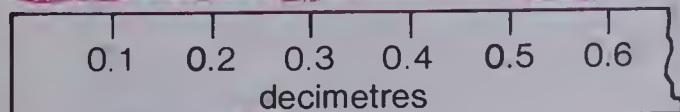


$$\begin{array}{r} 0.3 \\ + 0.2 \\ \hline \end{array}$$



The grasshoppers together measure    dm.

2.



$$\begin{array}{r} 0.6 \\ + 0.3 \\ \hline \end{array}$$

3.

$$\begin{array}{r} 0.4 \\ + 0.2 \\ \hline \end{array}$$

4.

$$\begin{array}{r} 0.3 \\ + 0.3 \\ \hline \end{array}$$

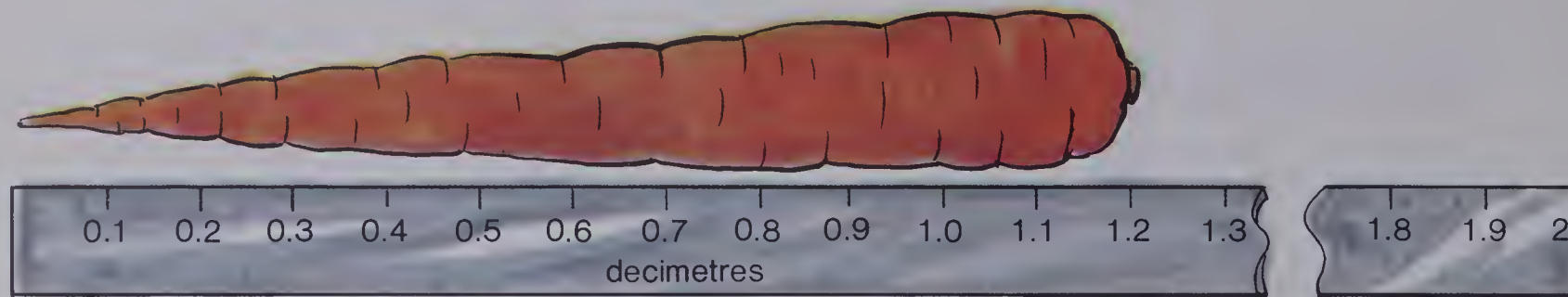
$$\begin{array}{r} 5. \quad 0.3 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 0.4 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 0.6 \\ + 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 0.1 \\ + 0.8 \\ \hline \end{array}$$

# Reading a Decimal Ruler



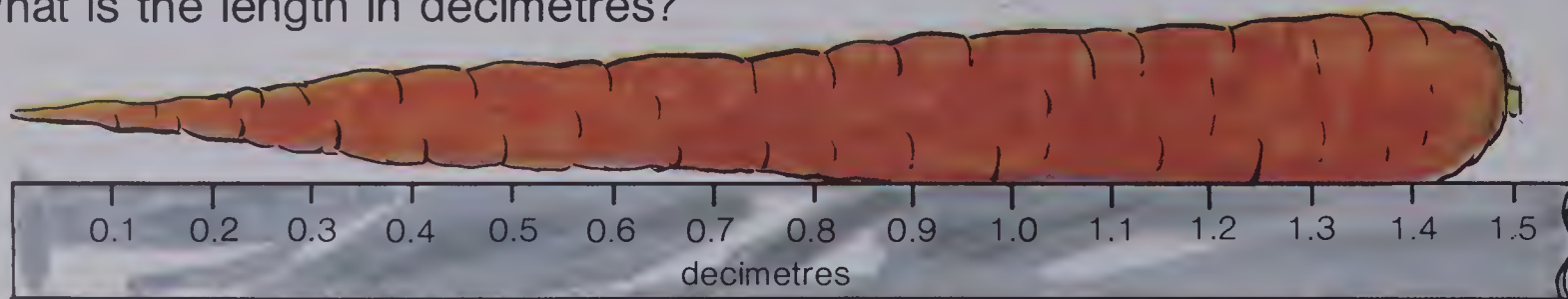
The length of the carrot is 1.2 dm.

$$1 \text{ dm} + 0.2 \text{ dm} = 1.2 \text{ dm}$$

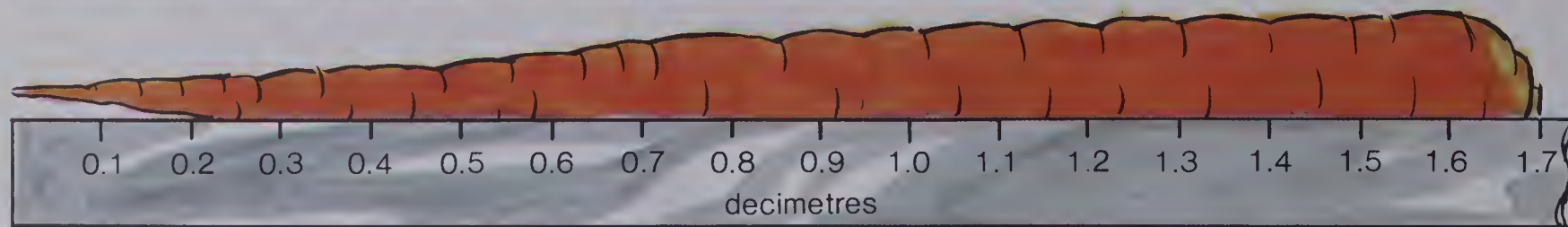
## Exercises

What is the length in decimetres?

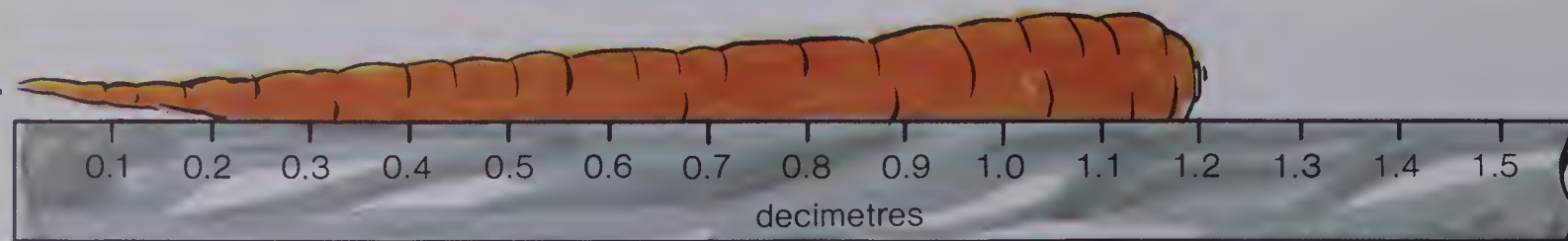
1.



2.



3.



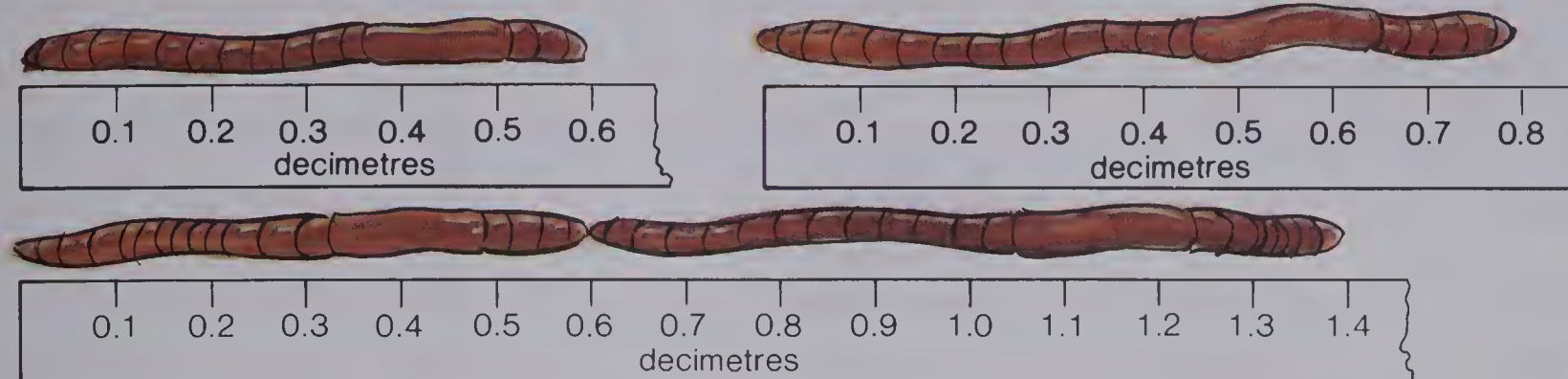
Write each as a decimal.

4. 1 dm and 0.3 dm → **1.3 dm**      5. 2 dm and 0.9 dm      6. 4 dm and 0.5 dm



# Adding Decimals

Bruno measured earthworms.

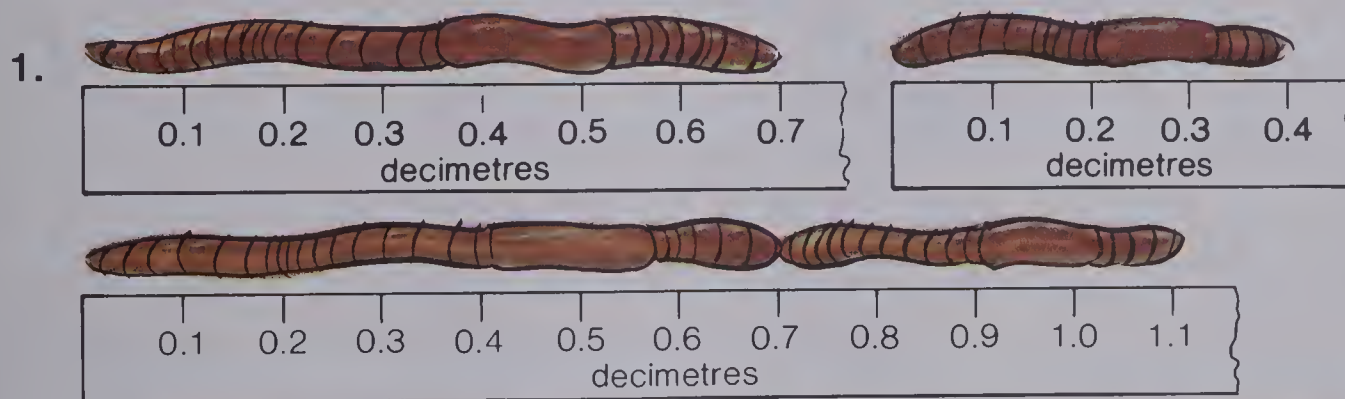


$$\begin{array}{r} 0.6 \\ + 0.8 \\ \hline 1.4 \end{array}$$

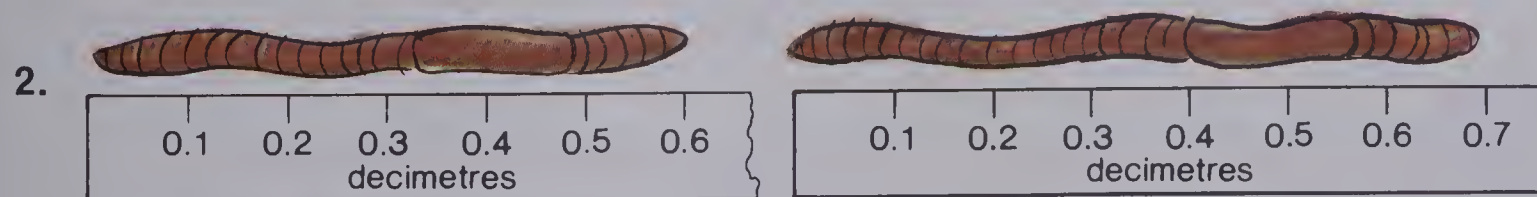
Together the earthworms are 1.4 dm long.

## Exercises

Calculate the lengths of the two.



$$\begin{array}{r} 0.7 \\ + 0.4 \\ \hline \end{array}$$



$$\begin{array}{r} 0.6 \\ + 0.7 \\ \hline \end{array}$$

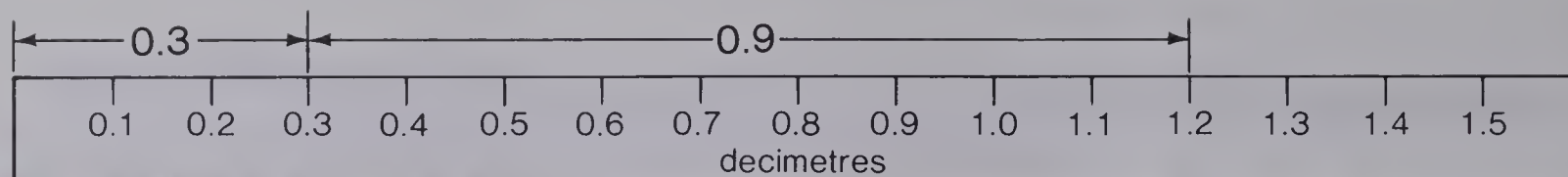
Add.

- |    |                 |    |                 |    |                 |    |                 |    |                 |    |                 |
|----|-----------------|----|-----------------|----|-----------------|----|-----------------|----|-----------------|----|-----------------|
| 3. | 0.6             | 4. | 0.4             | 5. | 0.8             | 6. | 0.9             | 7. | 0.7             | 8. | 0.9             |
|    | + 0.9           |    | + 0.9           |    | + 0.7           |    | + 0.3           |    | + 0.9           |    | + 0.1           |
|    | <u>        </u> |    | <u>        </u> |    | <u>        </u> |    | <u>        </u> |    | <u>        </u> |    | <u>        </u> |

# Practice

$$\begin{array}{r} 0.3 \\ + 0.9 \\ \hline \end{array}$$

1.2



## Exercises

Add.

$$\begin{array}{r} 1. \quad 0.1 \\ + 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0.4 \\ + 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 0.6 \\ + 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 0.7 \\ + 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 0.8 \\ + 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 0.7 \\ + 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 0.9 \\ + 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 0.5 \\ + 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 0.8 \\ + 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 0.9 \\ + 0.1 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 0.5 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 0.7 \\ + 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 0.8 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 0.9 \\ + 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 0.7 \\ + 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 0.4 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 0.9 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 0.6 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 0.3 \\ + 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 0.2 \\ + 0.9 \\ \hline \end{array}$$

Solve.

21. One earthworm is 0.6 cm long.  
Another is 0.8 cm long.  
How long are they together?

22. Red crayon is 0.9 dm long.  
Black crayon is 0.8 dm long.  
How long are they together?

23. One ribbon is 0.8 m long.  
Another is 0.9 m long.  
How much ribbon altogether?

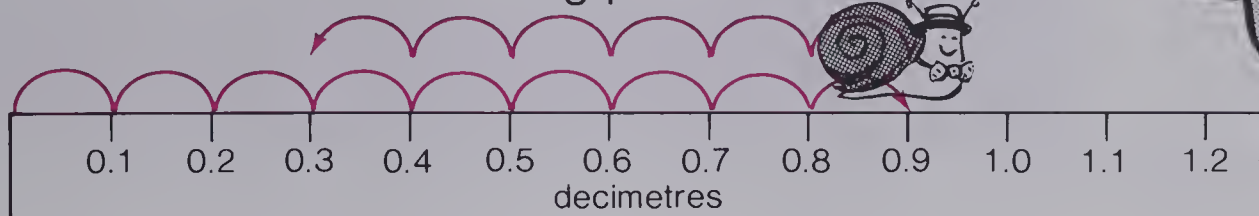
24. One trout is 0.4 m long.  
Another is 0.3 m long.  
How long are they together?

# Subtracting Decimals

Sam, the snail, crawled along the ruler 0.9 dm.

He turned and crawled back 0.6 dm.

How far is he from the starting place?



$$\begin{array}{r} 0.9 \\ - 0.6 \\ \hline 0.3 \end{array}$$

He is 0.3 dm from his starting place.

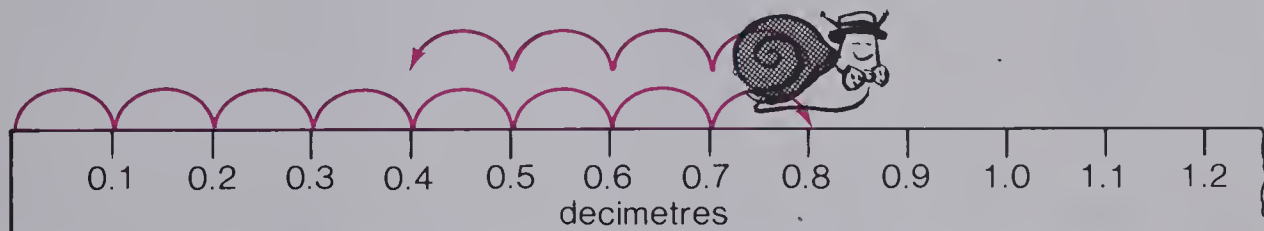
## Exercises

1. Sam crawled along the ruler 0.8 dm.

He crawled back 0.4 dm.

How far is he from the starting place?

$$\begin{array}{r} 0.8 \\ - 0.4 \\ \hline \end{array}$$

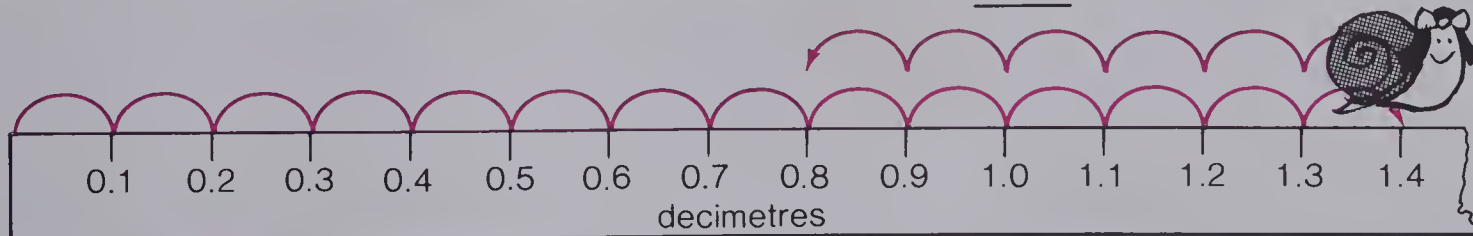


2. Cynthia crawled along a ruler 1.4 dm.

She crawled back 0.6 dm.

How far is she from the starting place?

$$\begin{array}{r} 1.4 \\ - 0.6 \\ \hline \end{array}$$

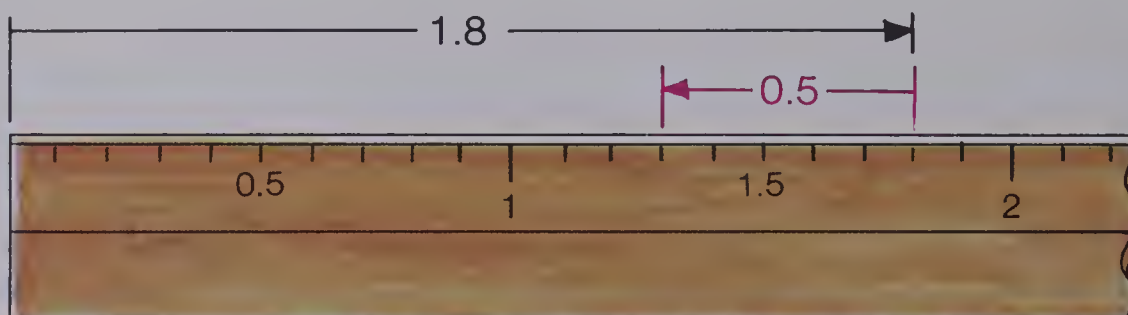


- |    |               |    |               |    |               |    |               |    |               |    |               |
|----|---------------|----|---------------|----|---------------|----|---------------|----|---------------|----|---------------|
| 3. | 0.9           | 4. | 1.6           | 5. | 1.4           | 6. | 1.3           | 7. | 0.9           | 8. | 1.6           |
|    | - 0.6         |    | - 1.2         |    | - 0.5         |    | - 0.3         |    | - 0.8         |    | - 0.9         |
|    | <u>      </u> |    | <u>      </u> |    | <u>      </u> |    | <u>      </u> |    | <u>      </u> |    | <u>      </u> |



# Practice

$$\begin{array}{r} 1.8 \\ - 0.5 \\ \hline 1.3 \end{array}$$



## Exercises

Subtract.

$$\begin{array}{r} 1. \quad 1.4 \\ - 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 1.3 \\ - 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 1.1 \\ - 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 1.5 \\ - 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 1.8 \\ - 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 1.2 \\ - 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 1.7 \\ - 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 1.6 \\ - 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 1.1 \\ - 0.1 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 1.7 \\ - 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 1.7 \\ - 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 1.8 \\ - 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 1.6 \\ - 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 1.9 \\ - 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 1.7 \\ - 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 1.4 \\ - 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 1.6 \\ - 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 1.2 \\ - 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 1.9 \\ - 0.3 \\ \hline \end{array}$$

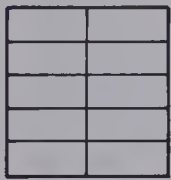
$$\begin{array}{r} 20. \quad 1.4 \\ - 0.7 \\ \hline \end{array}$$

Solve.

21. Red crayon is 1.6 dm long.  
Blue crayon is 0.9 dm long.  
How much longer is the red crayon?

22. Pink ribbon is 1.4 dm long.  
Yellow ribbon is 0.8 dm long.  
How much longer is the pink ribbon?

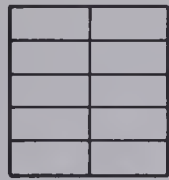
# Place Value



one



one



one

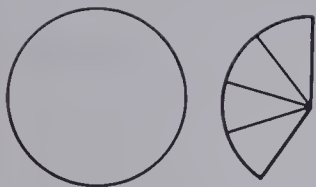


6 tenths

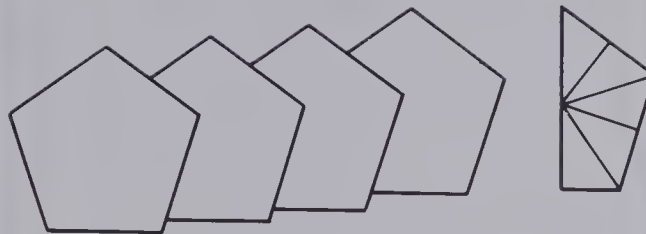
3 ones and 6 tenths

ones (and) tenths
3 . 6

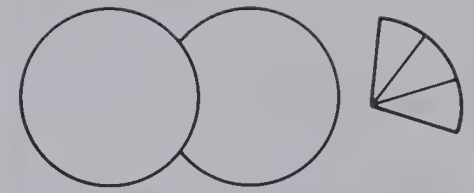
decimal number



1 one and 4 tenths  
1.4



4 ones and 5 tenths  
4.5

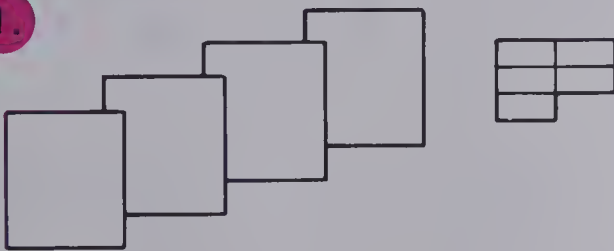


2 ones and 3 tenths  
2.3

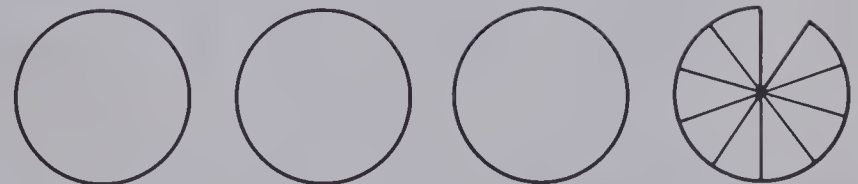
## Exercises

How many ones and how many tenths? Write the decimal.

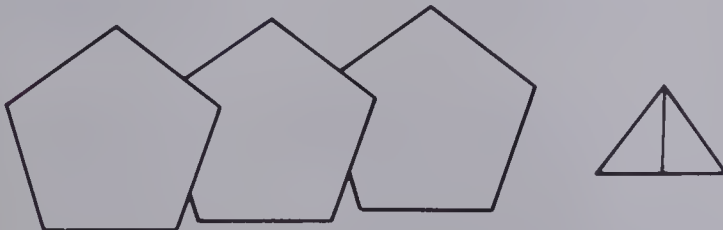
1.



2.



3.

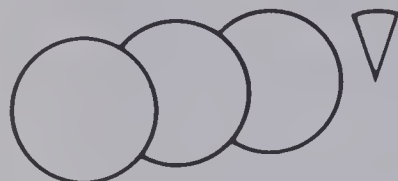


4.

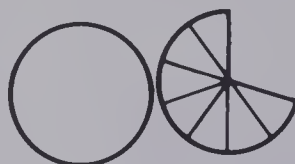


# Comparing Decimals

Which is more?



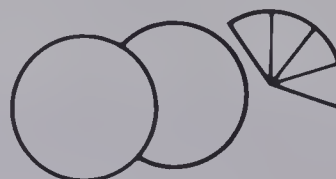
3.1



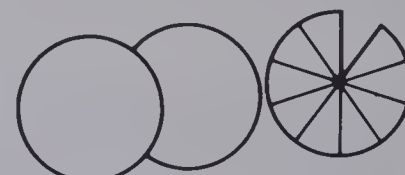
1.7

Compare  
the ones.

$$3.1 > 1.7$$



2.4



2.9

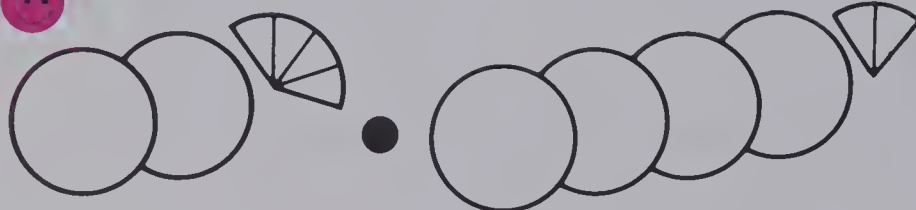
Compare  
the tenths.

$$2.4 < 2.9$$

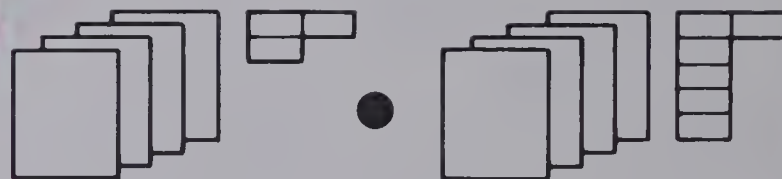
## Exercises

Write each numeral and use  $>$ ,  $<$ , or  $=$ .

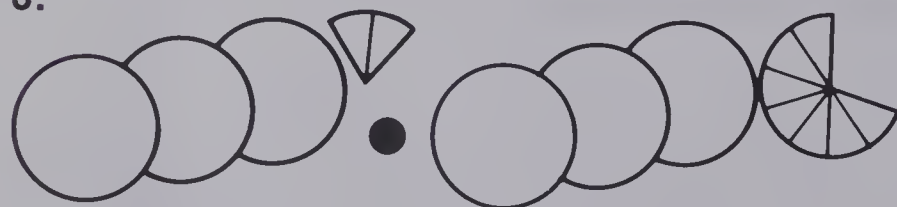
1.



2.



3.



4.



Use  $>$ ,  $=$ , or  $<$ .

5.

$$3.4 \bullet 2.1$$

6.

$$5.4 \bullet 7.6$$

7.

$$4.8 \bullet 4.8$$

8.

$$6.1 \bullet 6.3$$

9. John's ribbon is 6.5 dm long.  
Jill's ribbon is 6.7 dm long.  
Whose ribbon is longer?

10. Harry jumped 3.2 m.  
Mark jumped 3.8 m.  
Who jumped farther?



# Adding and Subtracting Decimals

Add.

$$\begin{array}{r} 2.3 \\ + 4.5 \\ \hline .8 \end{array}$$

ones	tenths
2.	3
4.	5
6.	8

Add tenths.  
Then add ones.

Subtract.

$$\begin{array}{r} 3.8 \\ - 1.2 \\ \hline .6 \end{array}$$

ones	tenths
3.	8
1.	2
2.	6

Subtract tenths.  
Then subtract ones.

## Exercises

Add.

$$\begin{array}{r} 1. \quad 2.3 \\ + 1.4 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 1.6 \\ + 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 6.2 \\ + 2.3 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 5.4 \\ + 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 1.6 \\ + 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8.3 \\ + 1.6 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 5.2 \\ + 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 4.7 \\ + 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 6.1 \\ + 1.8 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 5.2 \\ + 2.6 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 11. \quad 8.8 \\ - 2.3 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3.4 \\ - 1.2 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 5.2 \\ - 3.1 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 7.6 \\ - 2.1 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 6.8 \\ - 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 9.4 \\ - 7.2 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 9.9 \\ - 5.4 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 9.8 \\ - 8.7 \\ \hline \end{array}$$

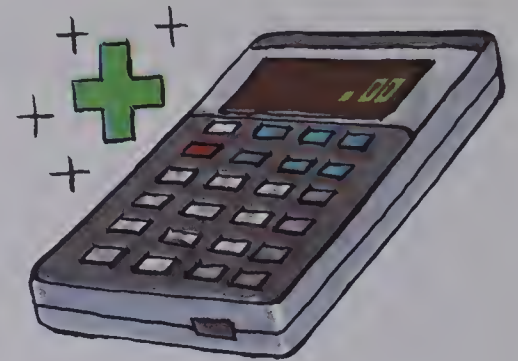
$$\begin{array}{r} 19. \quad 6.3 \\ - 4.1 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 6.8 \\ - 4.8 \\ \hline \end{array}$$

21. Kirk ran 1.4 km.  
Ace ran 2.6 km.  
How much farther did Ace run?

22. Bess is 1.6 m tall.  
Uri is 1.4 m tall.  
How much taller is Bess?

# More Addition



Add.

$$\begin{array}{r} 1 \\ 3.4 \\ + 5.8 \\ \hline 9.2 \end{array}$$

$$\begin{array}{|c|c|} \hline 1 & \\ \hline 3. & 4 \\ \hline + 5. & 8 \\ \hline 9. & 2 \\ \hline \end{array}$$

12 tenths = 1 one and 2 tenths  
1.2

Adding decimals is like adding whole numbers.

## Exercises

How many ones and how many tenths?

1. 13 tenths    1 one and 3 tenths

2. 15 tenths

3. 19 tenths

4. 16 tenths

5. 11 tenths

6. 18 tenths

7. 10 tenths

Add.

$$\begin{array}{r} 8. \quad 1.6 \\ + 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 2.8 \\ + 1.4 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 5.6 \\ + 3.7 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 7.4 \\ + 2.9 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3.4 \\ + 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 3.6 \\ + 1.9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 1.4 \\ + 7.8 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 4.1 \\ + 3.6 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 6.7 \\ + 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 5.3 \\ + 1.8 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 3.7 \\ + 2.8 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 4.1 \\ + 2.9 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 9.5 \\ + 4.7 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 8.3 \\ + 3.9 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 7.6 \\ + 4.9 \\ \hline \end{array}$$

# More Subtraction



Subtract.

$$\begin{array}{r} 4.2 \\ - 1.7 \\ \hline 2.5 \end{array}$$

4.	2
- 1.	7

Can't subtract tenths.  
Rename.

3	12
4.	<del>2</del>
- 1.	7
2.	5

Now subtract tenths.  
Then subtract ones.

Subtracting decimals is like subtracting whole numbers.

## Exercises

Rename.

1.  $4.2 = 3 \text{ ones and } 12 \text{ tenths}$

3.  $5.8 = \blacksquare \text{ ones and } \blacksquare \text{ tenths}$

5.  $3.4 = \blacksquare \text{ ones and } \blacksquare \text{ tenths}$

2.  $3.6 = 2 \text{ ones and } \blacksquare \text{ tenths}$

4.  $6.3 = \blacksquare \text{ ones and } \blacksquare \text{ tenths}$

6.  $7.1 = \blacksquare \text{ ones and } \blacksquare \text{ tenths}$

Subtract using the place-value chart.

7.	$4.1 \rightarrow$	3	11
	$- 2.7 \rightarrow$	<del>4.</del>	<del>1</del>
		2.	7
		1.	4

8.	$8.3 \rightarrow$		
	$- 2.6 \rightarrow$		

9.	$6.6 \rightarrow$		
	$- 4.9 \rightarrow$		

Subtract.

10.  $\begin{array}{r} 3.6 \\ - 1.9 \\ \hline \end{array}$

11.  $\begin{array}{r} 4.3 \\ - 1.8 \\ \hline \end{array}$

12.  $\begin{array}{r} 3.3 \\ - 1.4 \\ \hline \end{array}$

13.  $\begin{array}{r} 3.5 \\ - 1.8 \\ \hline \end{array}$

14.  $\begin{array}{r} 4.8 \\ - 2.9 \\ \hline \end{array}$

15.  $\begin{array}{r} 1.6 \\ - 0.8 \\ \hline \end{array}$

16.  $\begin{array}{r} 2.4 \\ - 1.8 \\ \hline \end{array}$

17.  $\begin{array}{r} 5.6 \\ - 3.7 \\ \hline \end{array}$

18.  $\begin{array}{r} 7.4 \\ - 2.9 \\ \hline \end{array}$

19.  $\begin{array}{r} 3.4 \\ - 2.8 \\ \hline \end{array}$



# Figure Skating and Decimals

These charts show the points for each skater in two figure skating contests. Calculate the total score for each skater.

Then name the gold (first), silver (second), and bronze (third) medal winners.

1.

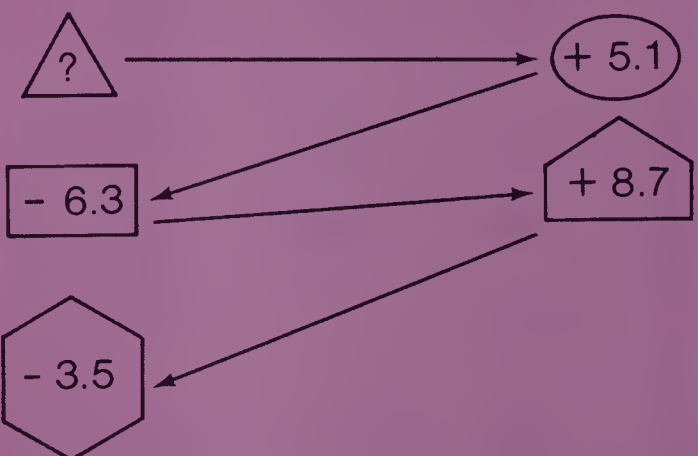
Name	Points for		Total Points
	Technical Merit	Artistic Impression	
Lori	4.2	4.8	
Nancy	5.0	4.2	
Josie	4.6	4.8	
Julie	4.4	5.3	
Kay	5.6	4.4	
Yvonne	5.2	5.6	
Sherri	5.1	5.5	
Janet	5.7	5.4	
Kim	4.9	5.8	
Vicky	5.0	5.9	



2.

Name	Points for		Total Points
	Technical Merit	Artistic Impression	
Bruno	4.1	4.7	
Teddy	4.0	4.6	
Michael	5.2	3.9	
Leonard	5.2	4.8	
Neil	4.6	4.1	
Kevin	5.8	5.7	
Ron	5.9	6.0	
Vern	5.9	5.9	
Roy	5.7	5.9	
Gary	5.9	5.8	

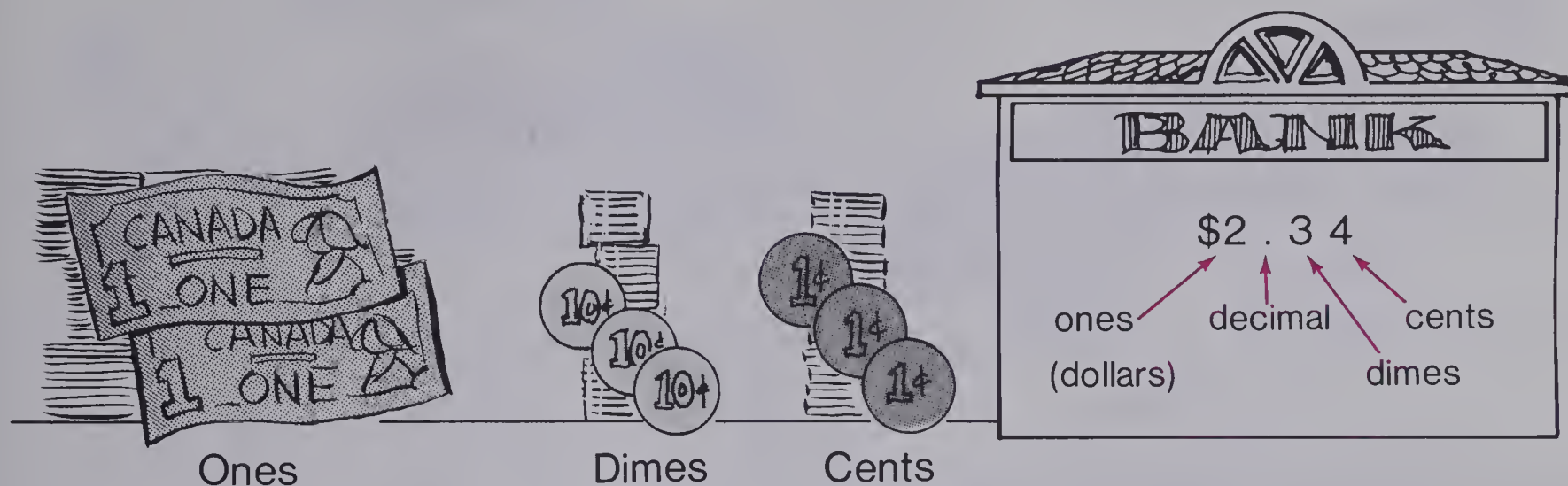
## BRAINTICKLER



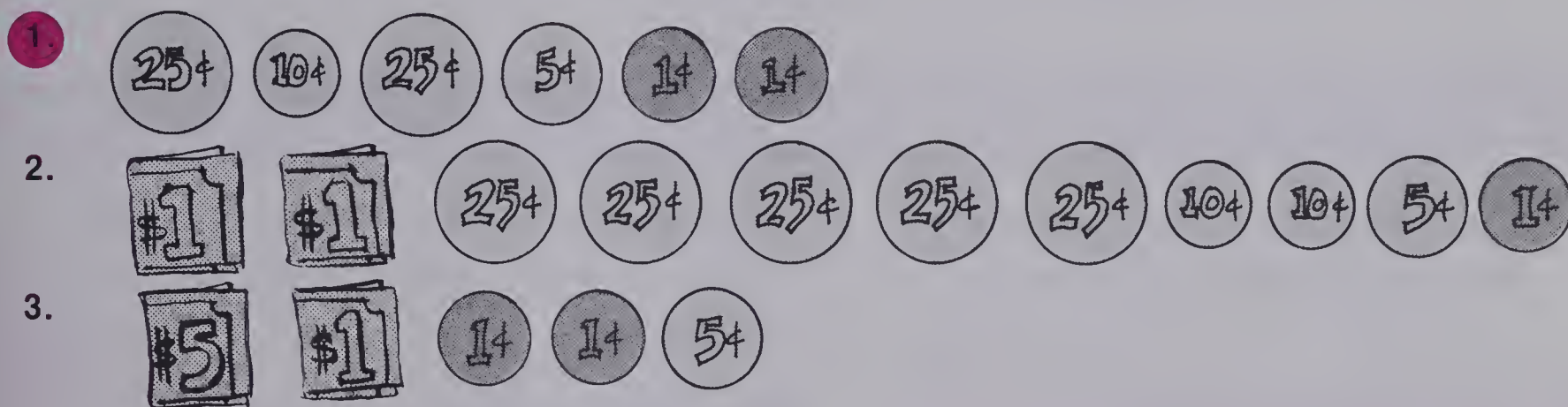
The final answer is 10.

What number did I start with?

# Dollars, Dimes, and Cents



**Exercises** How many dollars and cents?



Copy and complete.

4. \$ 6.72 = ■ dollars ▲ dimes ● cents
5. \$ 4.50 = ■ dollars ▲ dimes ● cents
6. \$ 2.05 = ■ dollars ▲ dimes ● cents
7. \$ 0.35 = ■ dollars ▲ dimes ● cents
8. \$ 9.13 = ■ dollars ▲ dimes ● cents

## BRAINTICKLER

Lunch at Burger Shack costs \$1.  
You give the waiter 50 coins  
which add up to \$1.

What coins did you give the waiter?

# Making Change

Sharon bought a kite.  
She paid with 3 one-dollar bills.  
How much change?



One way:    \$2.65        \$2.75        \$2.85        \$2.95        \$3.00  
                           $\underbrace{\hspace{1.5cm}}$          $\underbrace{\hspace{1.5cm}}$          $\underbrace{\hspace{1.5cm}}$          $\underbrace{\hspace{1.5cm}}$   
                          1 dime        1 dime        1 dime        1 nickel

She received 3 dimes and 1 nickel.  
She received 35¢ change.

## Exercises

How much change?

1. Carole bought a yo-yo for \$1.40.  
She paid with 2 one-dollar bills.

2. Comic books: \$1.58  
Paid: 1 two-dollar bill

4. Ticket to movie: \$1.35  
Paid: 1 five-dollar bill

6. Milk and eggs: \$3.25  
Paid: 1 five-dollar bill

8. Basketball: \$8.75  
Paid: 1 ten-dollar bill

\$1.40        \$1.50        \$1.75        \$2.00  
                   $\underbrace{\hspace{1.5cm}}$          $\underbrace{\hspace{1.5cm}}$          $\underbrace{\hspace{1.5cm}}$   
                  10¢        25¢        25¢

1 dime and 2 twenty-five cent coins  
is the change. She received 60¢  
in change.

3. Whistle: \$2.19  
Paid: 1 five-dollar bill

5. Tickets to Rock Band Show: \$2.50  
Paid: 1 five-dollar bill

7. T-shirt: \$3.49  
Paid: 1 ten-dollar bill

9. Bat: \$6.20  
Paid: 1 ten-dollar bill



# Adding Dollars and Cents

Mary bought a skateboard for \$21.85.  
She also bought a ball for \$3.32.  
How much did she pay altogether?



When we add money we must line up the decimals.

$\begin{array}{r} \$21.85 \\ + 3.32 \\ \hline \end{array}$	$\begin{array}{r} \overset{1}{} \$21.85 \\ + 3.32 \\ \hline \end{array}$	$\begin{array}{r} \overset{1}{} \$21.85 \\ + 3.32 \\ \hline \end{array}$
$\begin{array}{r} \phantom{00}7 \\ \phantom{00} \end{array}$	$\begin{array}{r} \phantom{00}.17 \\ \phantom{00} \end{array}$	$\begin{array}{r} \$25.17 \\ \phantom{00} \end{array}$

Adding dollars and cents is like adding whole numbers. *Remember the decimal point.*

Mary paid \$25.17.

We place a dollar sign at the top of the column and in the answer.

## Exercises

Add.

1. 
$$\begin{array}{r} \$5.32 \\ + 3.11 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} \$16.28 \\ + 8.15 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} \$23.56 \\ + 16.68 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} \$62.33 \\ + 4.98 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} \$11.46 \\ + 9.34 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} \$28.33 \\ + 10.09 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} \$10.09 \\ + 9.93 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} \$17.43 \\ + 2.57 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} \$26.58 \\ + 3.42 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} \$47.86 \\ + 3.24 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} \$64.19 \\ + 5.21 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} \$71.89 \\ + 8.98 \\ \hline \end{array}$$

# Adding More Dollars and Cents

Louis bought:

	Add.
A superduper hamburger	\$2.00
A milkshake	\$0.65
French fries	\$0.75

How much altogether?

Louis paid \$3.40.

$$\begin{array}{r} \overset{1}{\$2.00} \\ 0.65 \\ + 0.75 \\ \hline 0 \end{array}$$

$$\begin{array}{r} \overset{1}{\$2.00} \\ 0.65 \\ + 0.75 \\ \hline .40 \end{array}$$

$$\begin{array}{r} \overset{1}{\$2.00} \\ 0.65 \\ + 0.75 \\ \hline \$3.40 \end{array}$$

Adding dollars and cents is like adding whole numbers.  
Remember to line up the decimals.

## Exercises

Add.

1.  $\begin{array}{r} \$3.21 \\ 1.69 \\ + 0.33 \\ \hline \end{array}$

2.  $\begin{array}{r} \$3.29 \\ 0.56 \\ + 1.87 \\ \hline \end{array}$

3.  $\begin{array}{r} \$12.35 \\ 4.31 \\ + 2.65 \\ \hline \end{array}$

4.  $\begin{array}{r} \$ 0.75 \\ 11.65 \\ + 3.00 \\ \hline \end{array}$

5.  $\$1.46 + \$0.51 + \$1.62 = \blacksquare$

6.  $\$1.39 + \$0.68 + \$2.89 = \blacksquare$

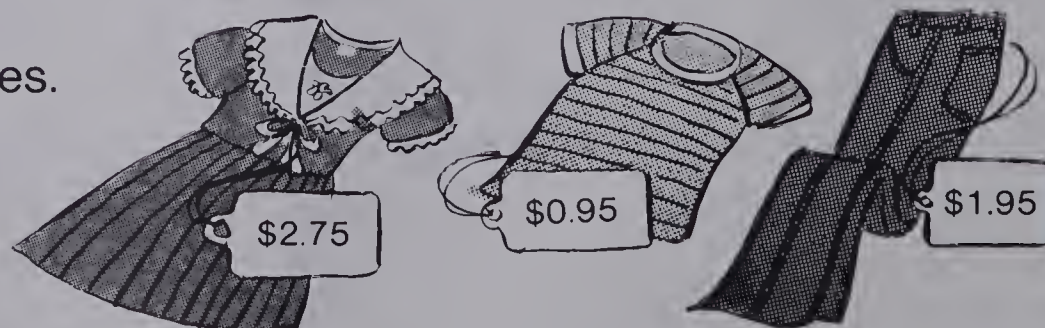
7.  $\$6.23 + \$1.56 + \$0.09 = \blacksquare$

8.  $\$0.69 + \$0.09 + \$2.23 = \blacksquare$

9.  $\$5.41 + \$3.27 + \$0.10 = \blacksquare$

10.  $\$1.79 + \$0.75 + \$3.31 = \blacksquare$

11. Sherri bought these doll clothes.  
How much did she pay?



# Subtracting Dollars and Cents

When we subtract money we must line up decimals.

Subtract.	Step 1	Step 2	Step 3	Step 4
	$\begin{array}{r} \$3.24 \\ - 0.89 \\ \hline \end{array}$	$\begin{array}{r} \overset{1}{\$3.}\overset{14}{24} \\ - 0.89 \\ \hline \end{array}$	$\begin{array}{r} \overset{2}{\$3.}\overset{11}{\overset{14}{24}} \\ - 0.89 \\ \hline \end{array}$	$\begin{array}{r} \overset{2}{\$3.}\overset{11}{\overset{14}{24}} \\ - 0.89 \\ \hline \end{array}$
		$\begin{array}{r} .5 \\ \hline \end{array}$	$\begin{array}{r} .35 \\ \hline \end{array}$	$\begin{array}{r} \$2.35 \\ \hline \end{array}$

Subtracting dollars and cents is like subtracting whole numbers.

## Exercises

Subtract.

- |  |  |  |  |   |
|--|--|--|--|---|
| 1. $\begin{array}{r} \$3.58 \\ - 1.23 \\ \hline \end{array}$ | 2. $\begin{array}{r} \$5.67 \\ - 0.54 \\ \hline \end{array}$ | 3. $\begin{array}{r} \$2.26 \\ - 0.59 \\ \hline \end{array}$ | 4. $\begin{array}{r} \$4.13 \\ - 2.67 \\ \hline \end{array}$     | 5. $\begin{array}{r} \$8.51 \\ - 5.69 \\ \hline \end{array}$      |
| 6. $\begin{array}{r} \$9.02 \\ - 4.92 \\ \hline \end{array}$ | 7. $\begin{array}{r} \$4.59 \\ - 1.23 \\ \hline \end{array}$ | 8. $\begin{array}{r} \$2.37 \\ - 0.57 \\ \hline \end{array}$ | ★ 9. $\begin{array}{r} \$17.36 \\ - 12.57 \\ \hline \end{array}$ | ★ 10. $\begin{array}{r} \$26.00 \\ - 12.37 \\ \hline \end{array}$ |

Solve.

★ 11.  $\$19.21 - \$9.84 = \blacksquare$

★ 12.  $\$26.14 - \$19.87 = \blacksquare$

13. Eric bought a mechano set.  
Regular price was \$15.67.  
He paid \$9.87 on sale.  
How much did he save?

14. Carmen had \$14.35.  
She paid \$8.67 for a camping kit.  
How much did she have left?



# Practice

Martin bought the stereo  
and the Rock Stars record.  
What did he pay?

$$\begin{array}{r} \phantom{0}1\phantom{0}1 \\ \$71.28 \\ + \phantom{0}3.98 \\ \hline \$75.26 \end{array}$$

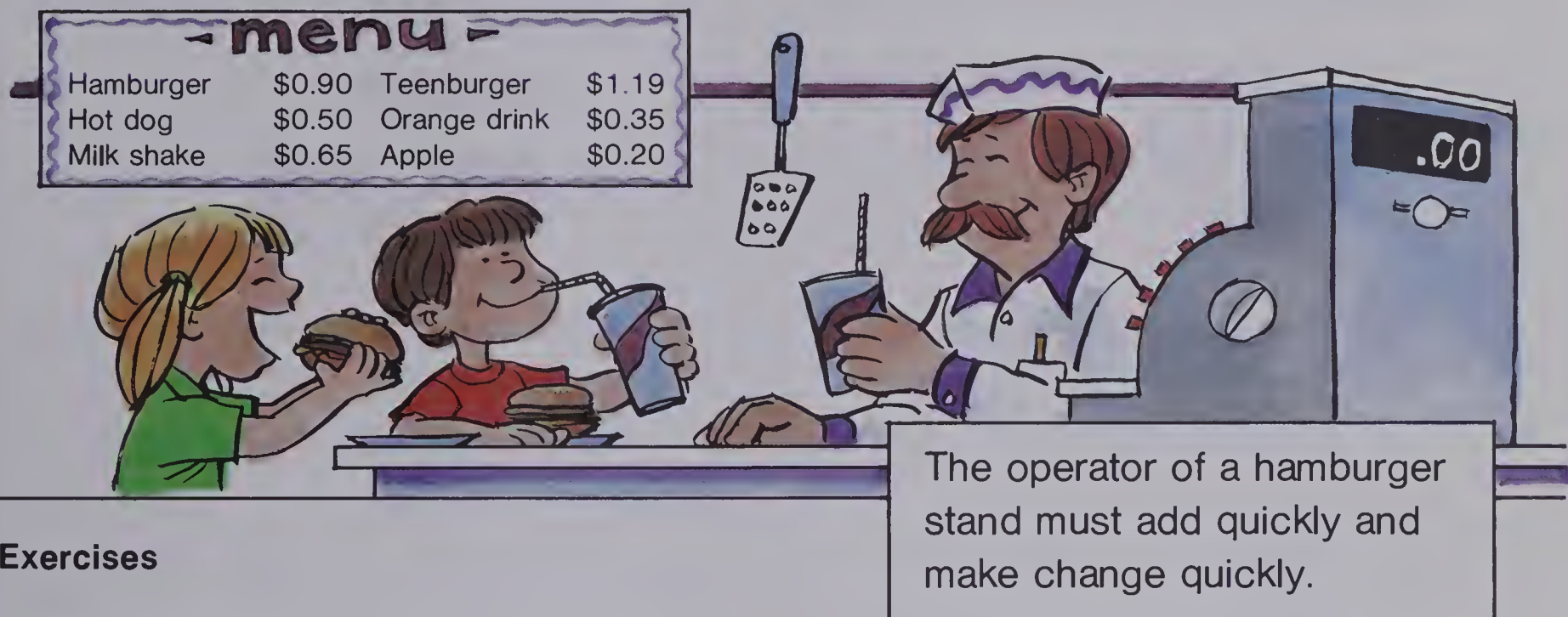
He paid \$75.26.



## Exercises

1. Melba bought:  
Disco Deks  
Star Flecs  
Rock Stars.  
What did she pay?
2. What is the savings on  
(a) Rock Stars record?  
(b) Disco Deks record?  
(c) Star Flecs record?
3. What is the total sale price  
for Rock Stars and Disco Deks?
4. What is the total sale price  
for Disco Deks and Star Flecs?
- ★ 5. What is the savings on  
the stereo?
- ★ 6. What is the total sale price of  
the three records and the stereo?

# Hamburger Stand Operator



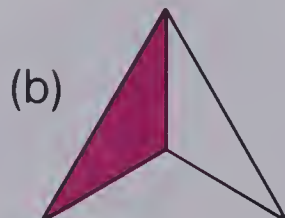
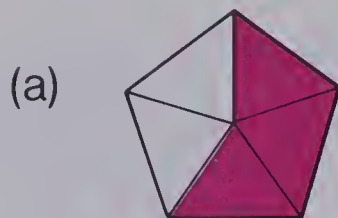
## Exercises

What change?

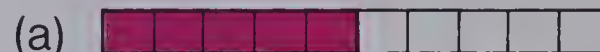
1. 1 hamburger  
1 shake  
Paid: 1 five-dollar bill
2. 1 hot dog  
1 orange drink  
Paid: 2 one-dollar bills
3. 1 teenburger  
1 apple  
Paid: 2 one-dollar bills
4. 1 teenburger  
1 orange drink  
Paid: 1 five-dollar bill
5. 1 hot dog  
1 milk shake  
Paid: 1 five-dollar bill
6. 2 hot dogs  
2 orange drinks  
Paid: 1 five-dollar bill
7. What could you buy if you had \$1.00? What change would you get?
8. What could you buy if you had \$2.00? What change would you get?
9. What items cost exactly \$1.25?
10. What items cost exactly \$1.54?

# Chapter Test

1. Write the fraction for the red part.



2. Write the decimal for the red part.



3. Write the decimal.

(a)  $\frac{13}{10}$

(b)  $\frac{6}{10}$

(c)  $1\frac{7}{10}$

4. How many ones and how many tenths?

(a) 2.7

(b) 0.2

(c) 1.0

5. Add.

(a) 
$$\begin{array}{r} 0.3 \\ + 0.4 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 1.4 \\ + 2.7 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} \$6.15 \\ + 1.85 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} \$11.23 \\ + 2.39 \\ \hline \end{array}$$

6. Subtract.

(a) 
$$\begin{array}{r} 0.9 \\ - 0.2 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 4.2 \\ - 0.9 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} \$5.45 \\ - 1.23 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} \$18.03 \\ - 9.78 \\ \hline \end{array}$$

What change?

7. Bought: Milk shake \$0.85  
Orange drink \$0.65  
Paid: two-dollar bill

8. Bought: Super Jet Kit \$1.85  
Glue \$0.75  
Paid: five-dollar bill

9. How many decimetres long?





# Cumulative Review

1. Multiply.

(a)  $7 \times 8$

(b)  $9 \times 6$

(c)  $25 \times 1000$

(d)  $60 \times 100$

(e) 26

$\times 3$

\_\_\_\_\_

(f) 87

$\times 6$

\_\_\_\_\_

(g) 73

$\times 9$

\_\_\_\_\_

(h) 45

$\times 8$

\_\_\_\_\_

2. Divide.

(a)  $81 \div 9$

(b)  $48 \div 8$

(c)  $3000 \div 100$

(d)  $700 \div 10$

(e)  $6 \overline{)132}$

(f)  $5 \overline{)125}$

(g)  $4 \overline{)280}$

(h)  $9 \overline{)246}$

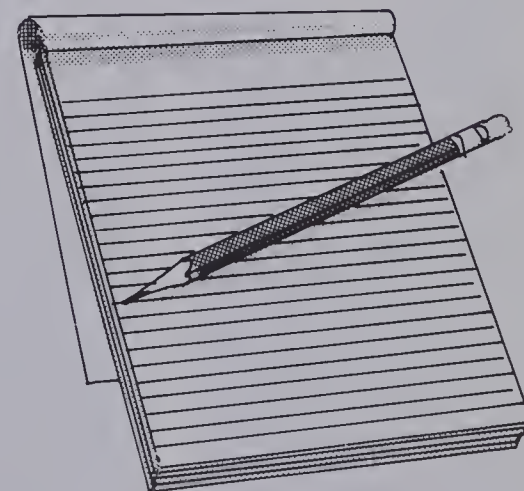
3. Write the numeral: two thousand, fifty-six.

4. Name an object that is about (a) 2 m long (b) 20 cm.

5. Estimate the length in millimetres:

(a) \_\_\_\_\_

(b) \_\_\_\_\_



Solve.

6. Sharing: 52 apples

6 people

How many apples each  
and how many left over?

7. Draw a picture and solve.

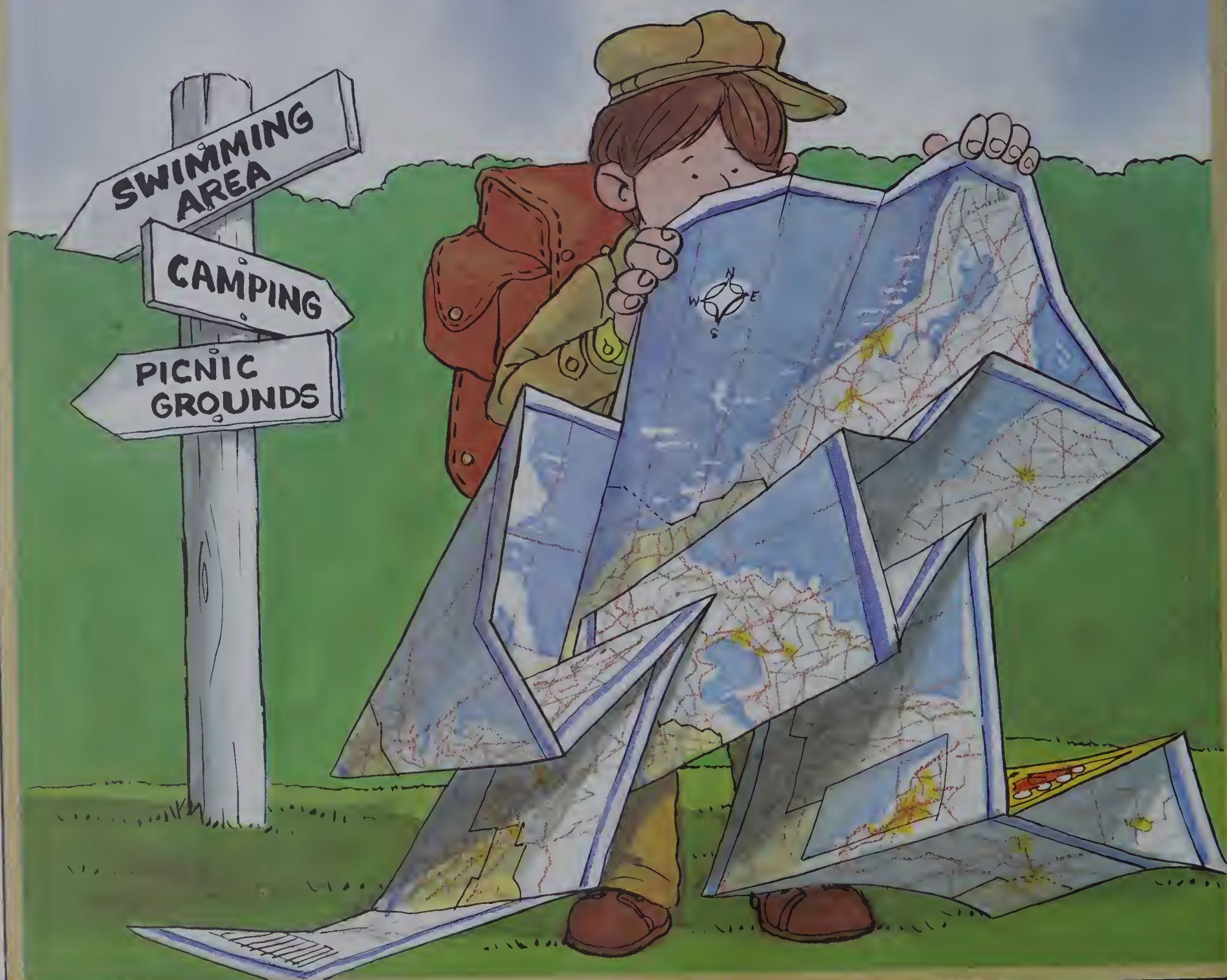
Mark is 1.3 m tall.

Susie is 0.9 m tall.

How much taller is Mark?

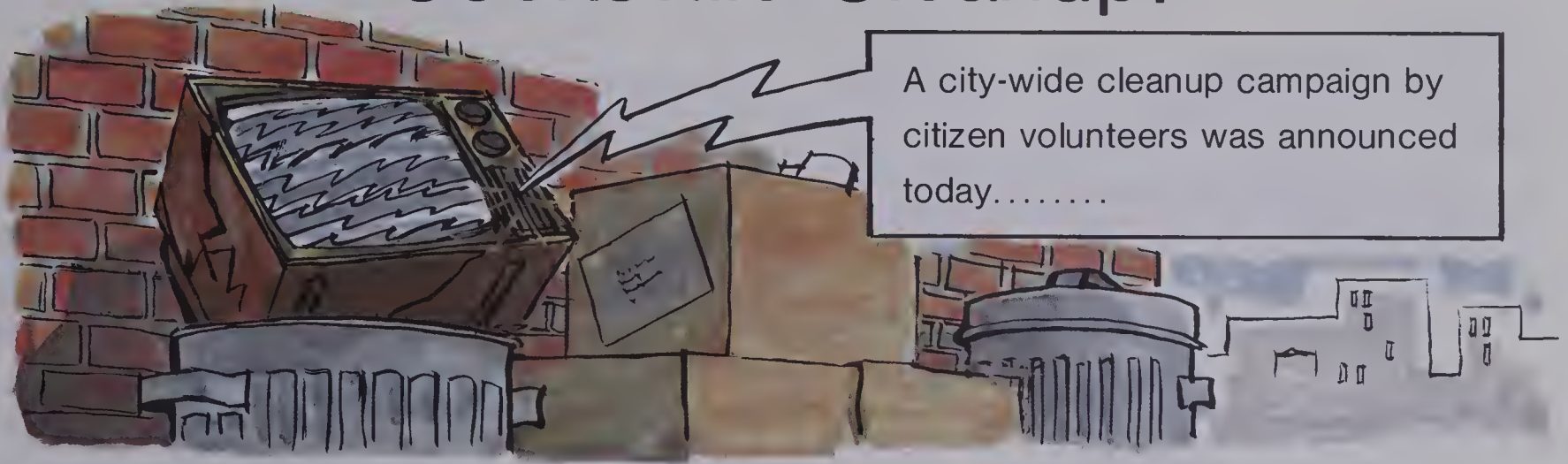
## Chapter 6

# Applications: Problem Solving and Measurement





# Cooksville Cleanup!



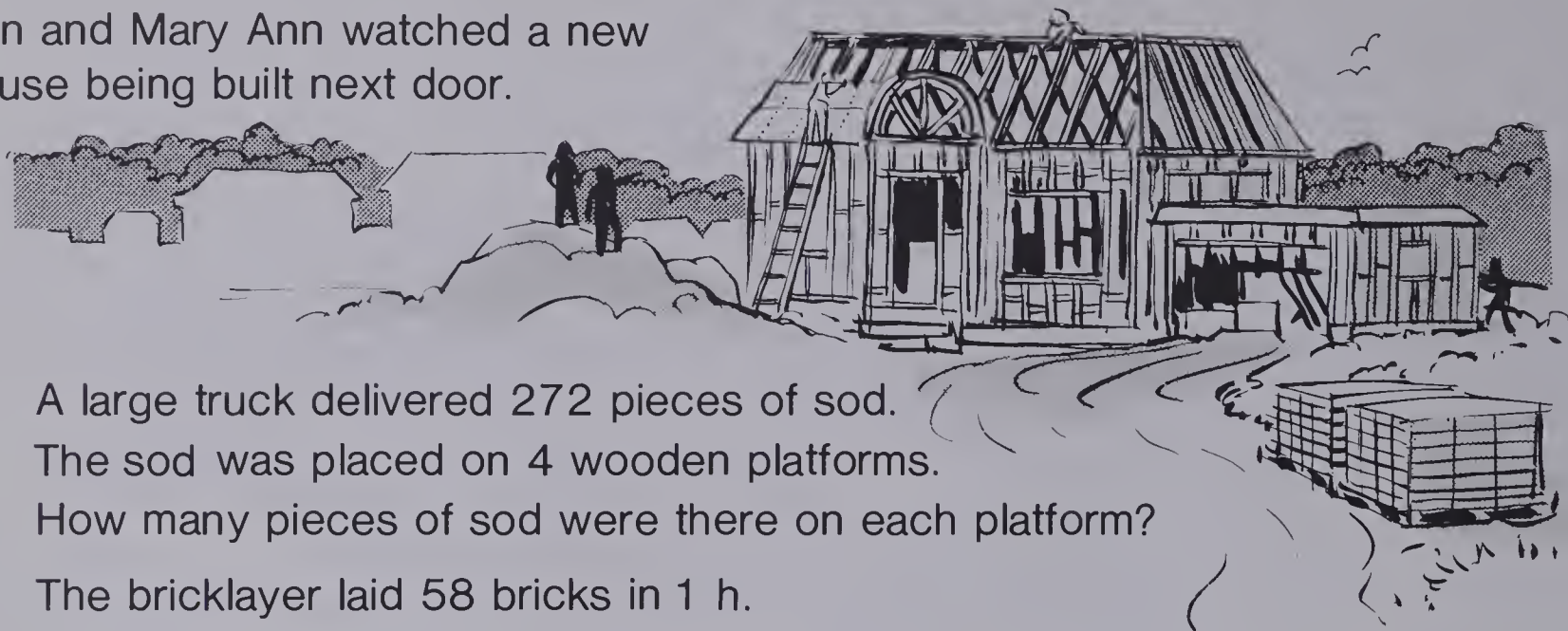
A city-wide cleanup campaign by citizen volunteers was announced today.....

1. Grover's Hardware store donated 265 plastic garbage bags for the cleanup. Tony's Grocery Store donated 298 bags.  
How many bags were donated altogether?
2. The Wolf Patrol from the Cooksville Boy Scouts collected 42 old car tires from a vacant lot.  
The Raven Patrol collected 27 tires.  
How many more tires were collected by the Wolf Patrol than the Raven Patrol?
3. Students from Cooksville Elementary School helped to fill 300 containers with newspapers and 163 containers with glass bottles.  
How many more containers were filled with newspapers than with bottles?
4. The Cooksville Girl Guides planted 114 pine seedlings and 87 spruce seedlings in the Cooksville Park.  
How many seedlings were planted altogether?
5. Cooksville has 120 traffic signs.  
The Streets Department painted 76 of them.  
How many traffic signs still need painting?

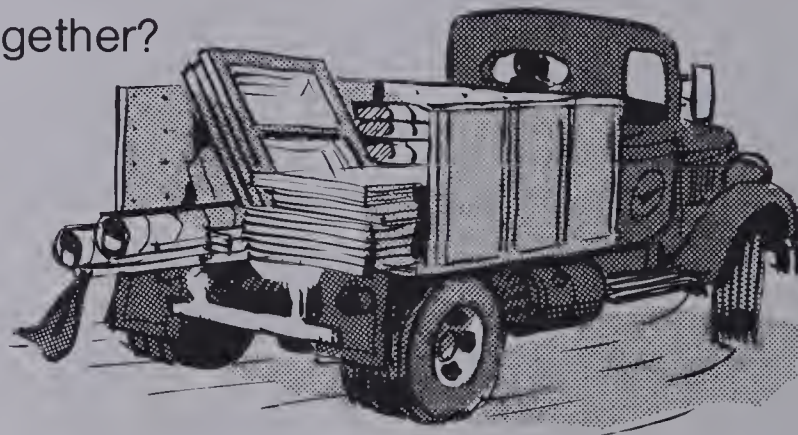


# The House Next Door

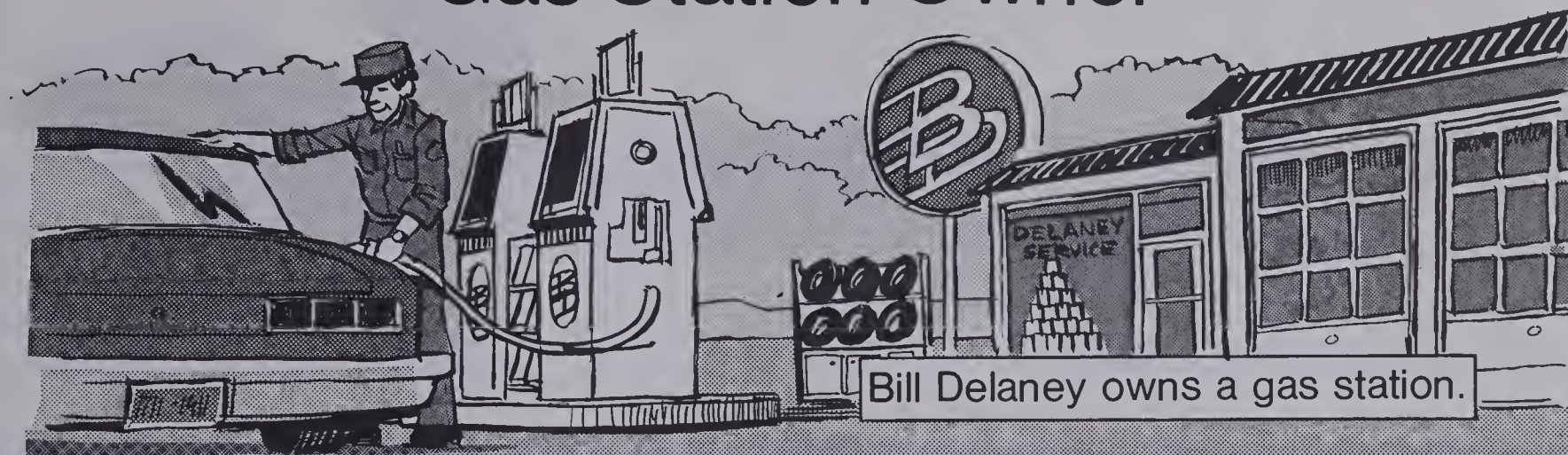
Ron and Mary Ann watched a new house being built next door.



1. A large truck delivered 272 pieces of sod.  
The sod was placed on 4 wooden platforms.  
How many pieces of sod were there on each platform?
2. The bricklayer laid 58 bricks in 1 h.  
How many bricks could he lay in 8 h?
3. The electrician brought 6 boxes of wire.  
There were 45 m of wire in each box.  
How many metres of wire were there altogether?
4. The plumber brought 84 pieces of pipe.  
There were 6 pipes in every bundle.  
How many bundles of pipe were there?
5. Insulation was delivered in 18 bags.  
There were 8 pieces in each bag.  
How many pieces of insulation were delivered altogether?
6. The roofer brought 9 bundles of shingles, with 35 shingles in each bundle.  
How many shingles were there altogether?
7. The lumber company cut 219 wall supports and put them in bundles of 8.  
How many bundles could be made?  
How many wall supports would be left over?



# Gas Station Owner

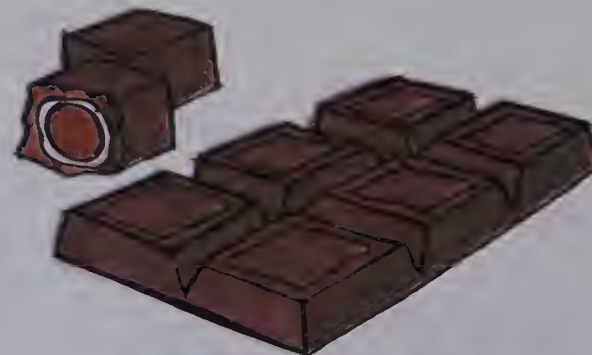


1. Mr. Delaney gives 6 free juice glasses to every customer who has a car tune-up.  
85 customers had tune-ups.  
How many glasses did he give away?
2. Mr. Delaney sold 28 627 L of gas on Friday and 32 516 L on Saturday.  
How many more litres did he sell on Saturday than Friday?
3. Mrs. Northwood paid \$4.99 to have her car greased, \$8.00 for gas, and \$10.56 for new spark plugs.  
How much did Mrs. Northwood pay altogether?
4. Mr. Delaney had 107 cans of "Super Oil".  
He wanted to put 4 cans in each plastic bag for a special sale.  
How many plastic bags did he need?  
How many cans of oil did he have left over?
5. Last year Mr. Delaney sold 187 "Super Tread" tires.  
This year he sold 214.  
How many more tires did he sell this year than last?
6. Customers who take their cars through the car wash receive a free road map.  
216 cars went through last week and 195 went through this week.  
How many road maps were given away?



# Sharing

Donna had 4 chocolates.  
Michael had 8 chocolates.  
They shared the chocolates  
evenly.  
Each received 6 chocolates.



Donna's

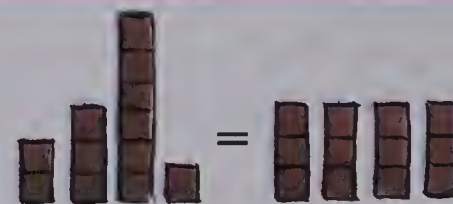


Michael's

To find an **average** means to even out the amounts.



Average = 5



Average = 3

## Exercises

1. Even out the amounts. Draw the results.

(a)



(b)



(c)



(d)



2. Find the average number of pieces of chocolate.

(a)



(b)



(c)



(d)



3. Share evenly.

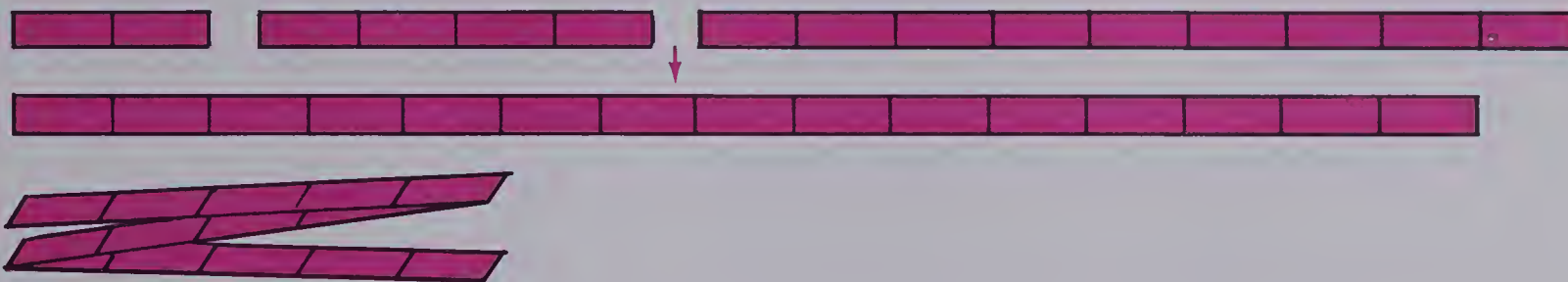
(a) Nancy 9 marbles  
Tim 3 marbles

(b) Phillip 10 candies  
Shawn 1 candy  
Brenda 4 candies



# Dividing for Average

Find the average of these three.



Cut one piece the length of the three.

Fold into three even pieces.

Average length = 5 cm.

$$\text{Short cut: } 2 + 4 + 9 = 15$$

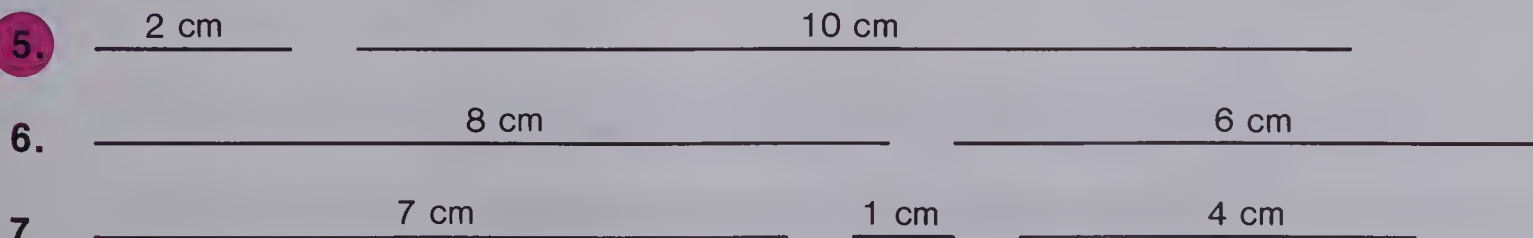
$$15 \div 3 = 5$$

## Exercises

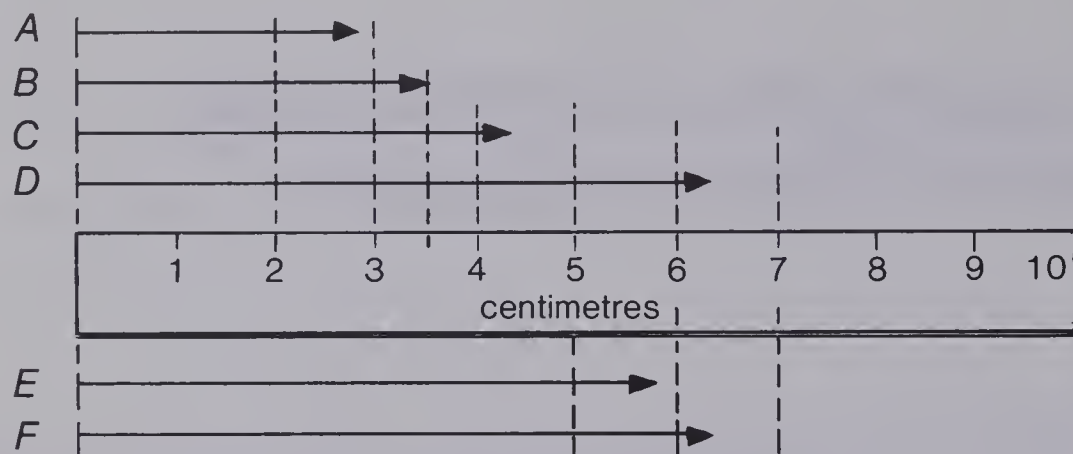
Cut and fold to find the averages.



Use the short method. Use your ruler.



# Rounding



The length of arrow *A* is more than 2 cm. It is less than 3 cm.

The arrow is closer to 3 cm than to 2 cm.

**Rounded** to the nearest centimetre, the arrow is 3 cm long.

Look at arrow *B*.

When the length is halfway between two units, we round up to the larger unit.

Rounded to the nearest centimetre, arrow *B* is 4 cm long.

## Exercises

1. Give the length rounded to the nearest centimetre.

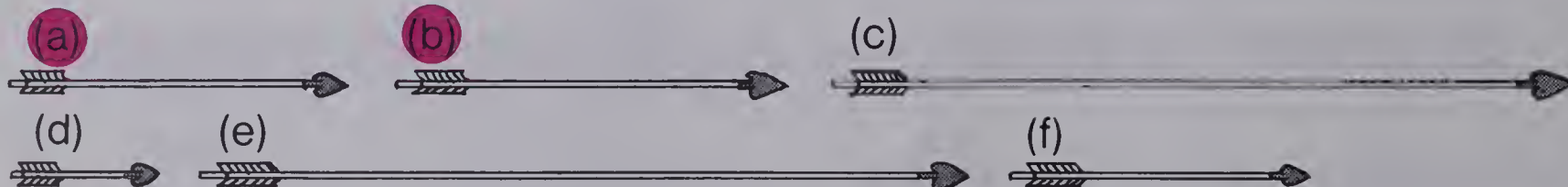
(a) length of arrow *C*

(b) length of arrow *D*

(c) length of arrow *E*

(d) length of arrow *F*

2. Use your ruler. Round to the nearest centimetre.




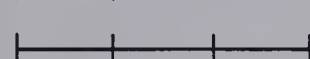
3. Round to the nearest 10 mm.

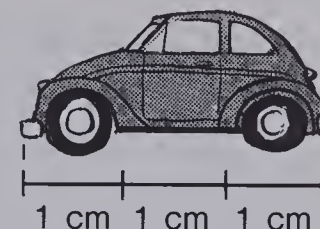


# Drawing to Scale

We can draw pictures of real things to scale.


 1 cm shows a real distance of 1 m.

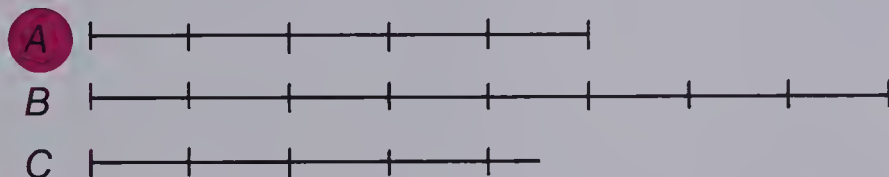
 This segment shows a real length of 3 m.



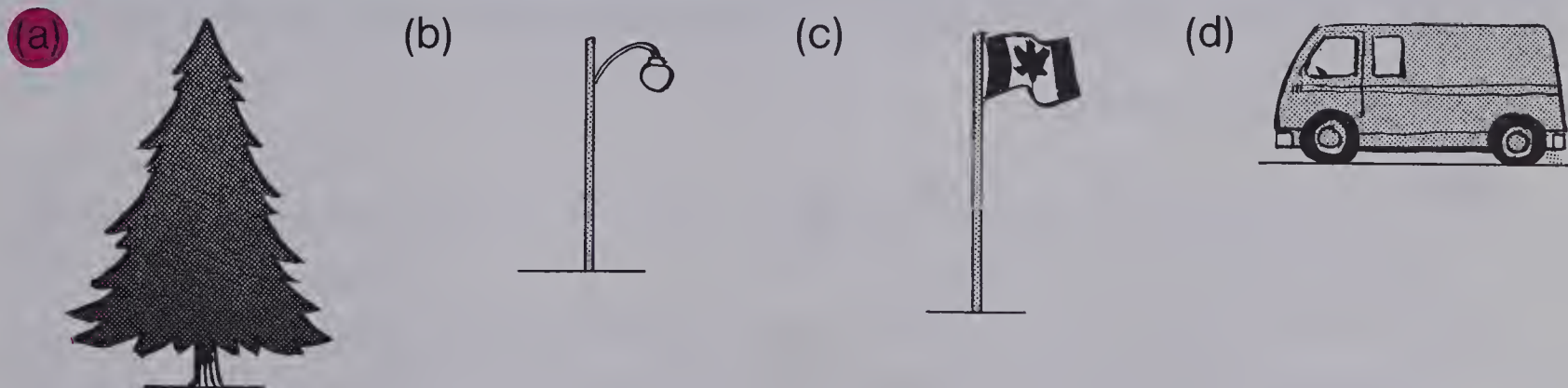
## Exercises


1. What is the real length of segment A? B? C?

 shows 1 m.

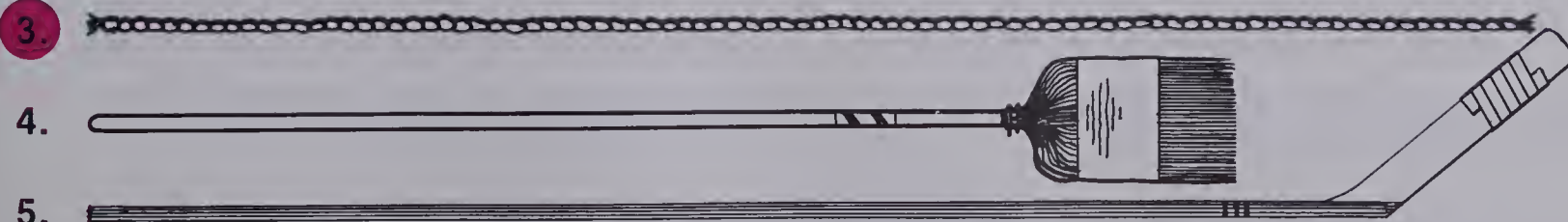


2. What is the real height of each object?  represents 2 m.



This time use  (1 cm) to show one decimetre (1 dm).

What is the real length represented by each? Use your ruler.



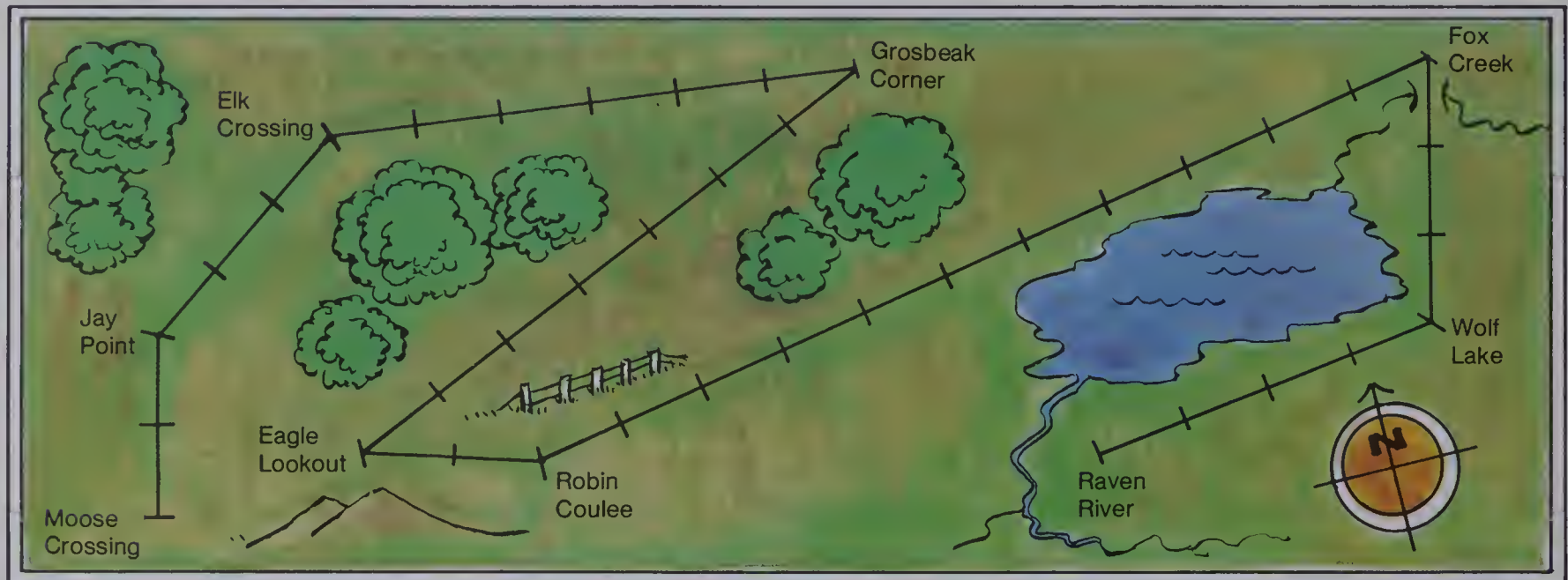


# Maps

—|—| On the map, this segment shows 1 km.

—|—|—|—| This segment shows 3 km.

Map of Trails at Boy Scout Camp



1. What distance is shown?

(a) —|—|—|—| (b) —|—|—|—|—|—|—|

(c) —|—| (d) —|—|—|—|—|—|—|—|—|—|

Write the distance along the trails between each two places.

2. Moose Crossing to Jay Point.

3. Jay Point to Elk Crossing.

4. Elk Crossing to Grosbeak Corner.

5. Grosbeak Corner to Eagle Lookout.

6. Eagle Lookout to Fox Creek.

7. Fox Creek to Raven River.

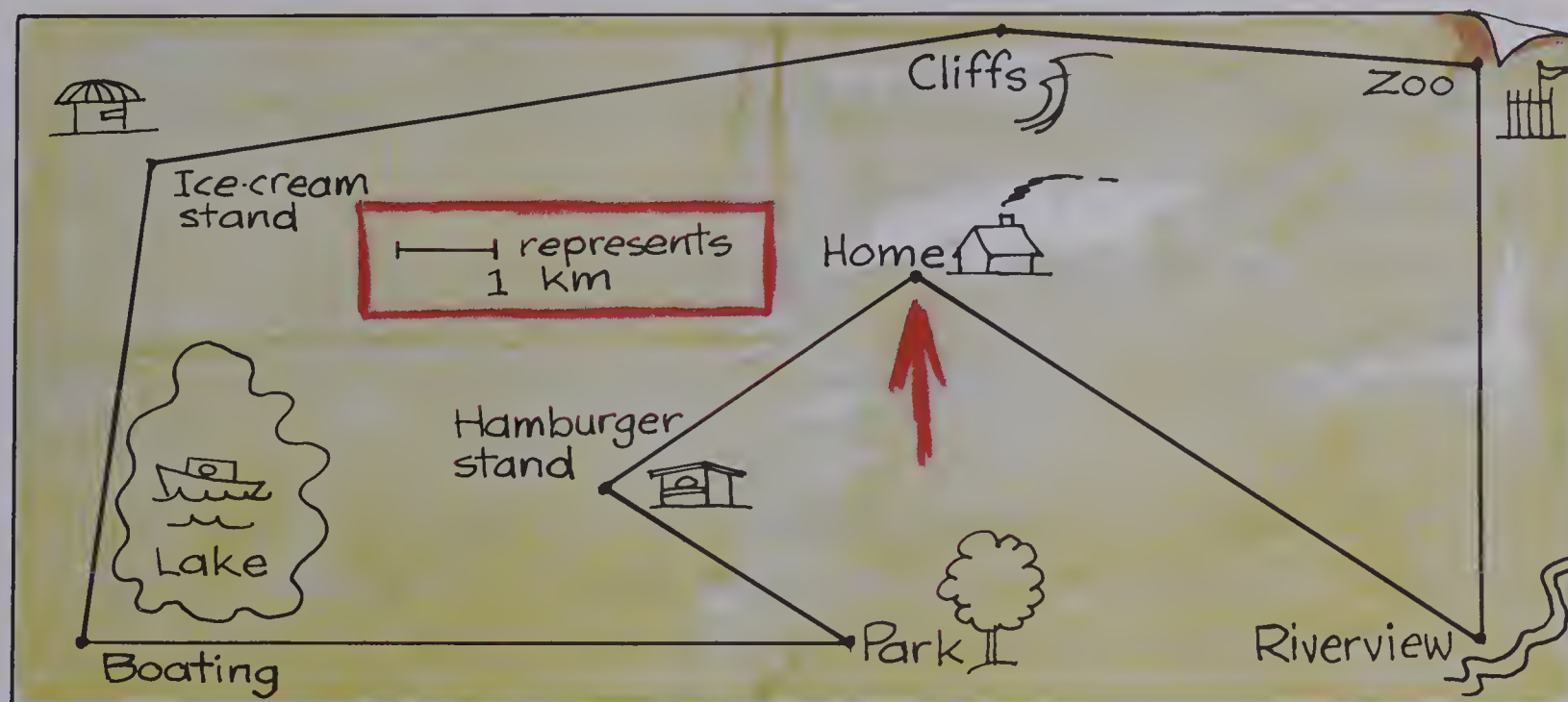
8. Jay Point to Eagle Lookout.

9. Moose Crossing to Raven River.

# A Sunday Drive

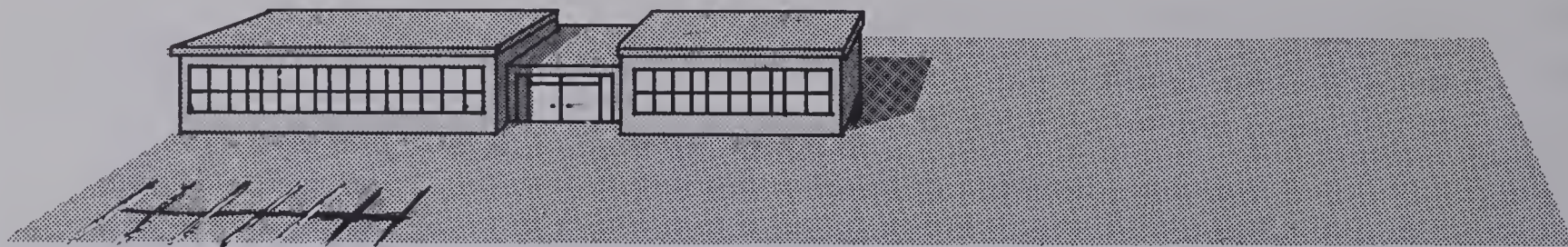
Jan and her parents went for a Sunday drive.

Jan's Father drew this map.



- Name the places Jan and her parents visited.
- How far is it from:
  - Home to Riverview?
  - Riverview to the Zoo?
  - Zoo to the Cliffs?
  - Cliffs to the Ice-cream stand?
  - Ice-cream stand to the Lake?
  - Lake to the Park?
  - Park to the Hamburger stand?
  - Hamburger stand to Home?
- Add to find the answers. How far is it on the map from:
  - Home to the Zoo?
  - Zoo to the Ice-cream stand?
  - Ice-cream stand to the Park?
  - Park to Home?
  - Home to the Ice-cream stand?
  - Ice-cream stand to the Hamburger stand?
- What is the total distance Jan and her parents drove?

# Walking to School



Use a 100 m cord.

Measure a route in your playground that is 10 of these cords long.

Mark with stakes.

## Exercises

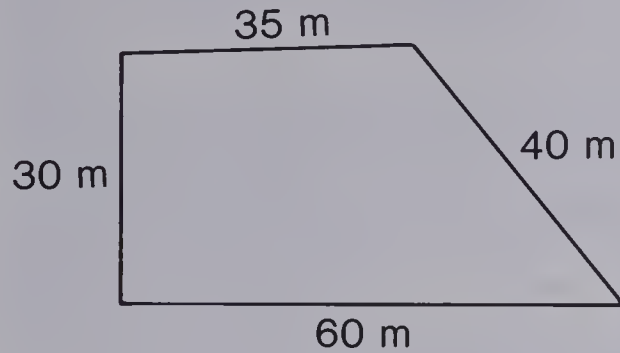
1. (a) What is the distance in metres of this route?  
(b) How many minutes are needed for you to walk the route?  
(c) Copy and complete. I can walk 1 km in ■ min.  
I can walk 2 km in ■ min.
2. Mary walked 1 km in 10 min.  
How far can Mary walk in 20 min?
3. Mary walked from her house to school.  
Time: 30 min.  
How far is it from her house to school?
4. John walked 1 km in 8 min.  
John walked from home to school.  
Time: 24 min.  
How far is it from home to school?
5. How long does it take you to walk to school?  
How far is it from your house to school?



# Getting Around

The **perimeter** of a shape is the distance around it.

John walked around the block. How far did he walk?



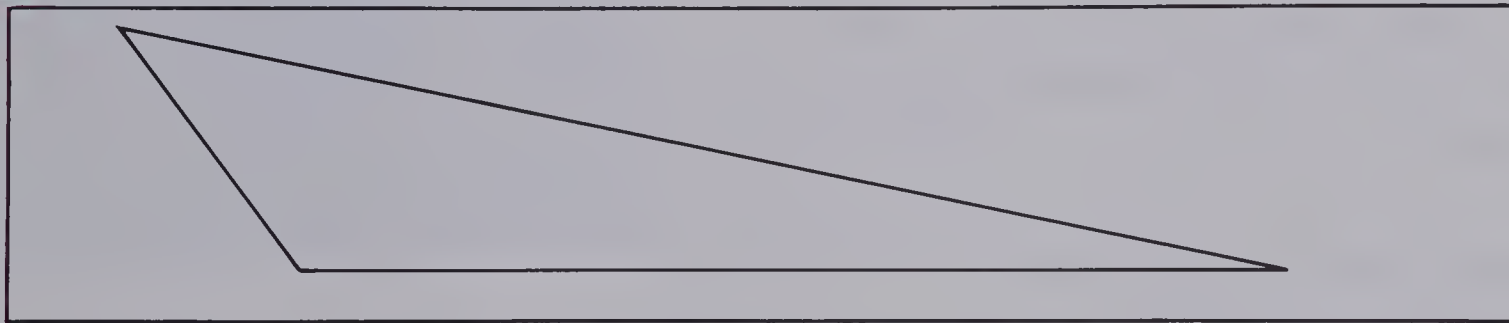
$$\begin{aligned}\text{Perimeter} &= 30 \text{ m} + 60 \text{ m} + 40 \text{ m} + 35 \text{ m} \\ &= 165 \text{ m}\end{aligned}$$

## Exercises

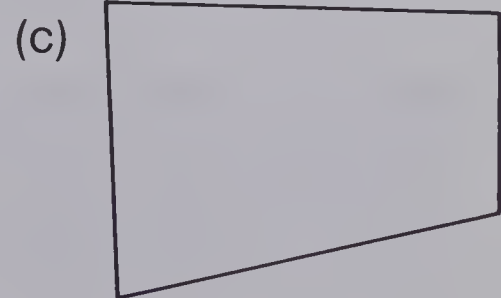
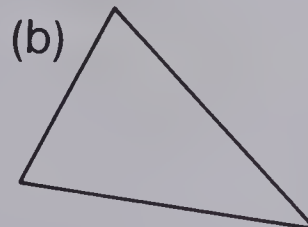
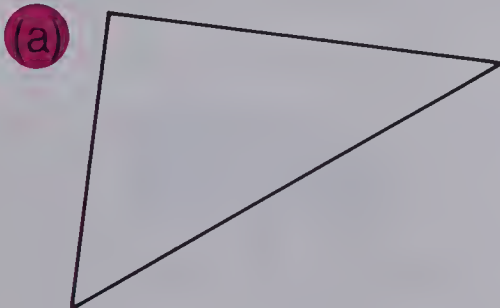
1. Use your ruler. Find the perimeter in centimetres of:

(a) the rectangle

(b) the triangle.



2. Find the perimeter in centimetres.



3. Find the perimeter in metres of:

(a) your classroom

(b) your chalkboard

(c) a door

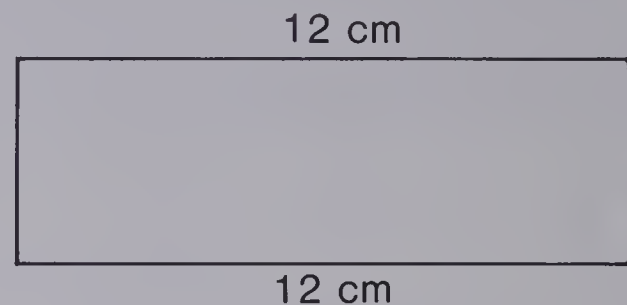
(d) the top of your teacher's desk.

# What's Missing?

What information is missing in each question?

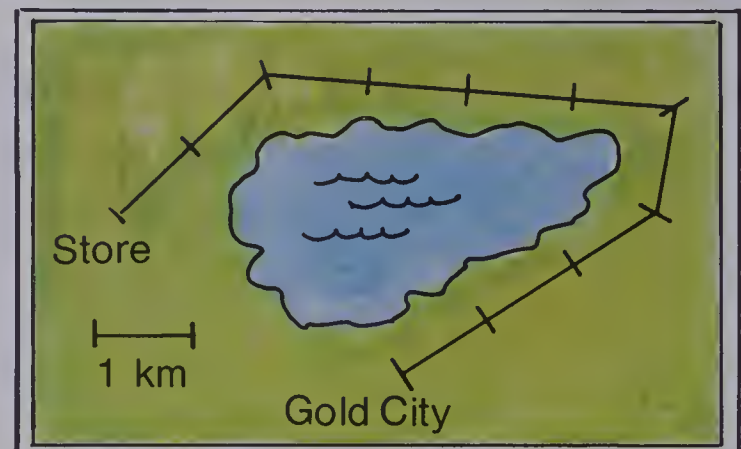
1. Jill walked 2 km.  
How much farther has she to go?

2. What is the perimeter of this rectangle?



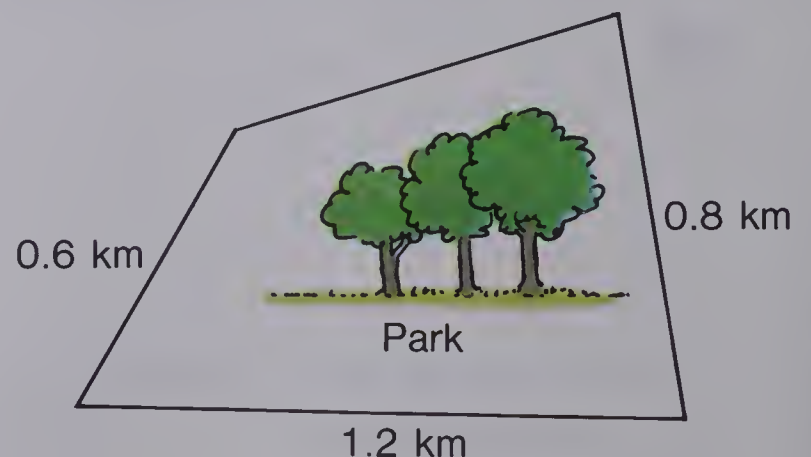
3. Jennifer bought  
1 milkshake for 65¢  
1 hamburger for 95¢.  
How much change did she get?

4. The map shows the Brownies' camp.  
How far from Bay Lookout to the store?



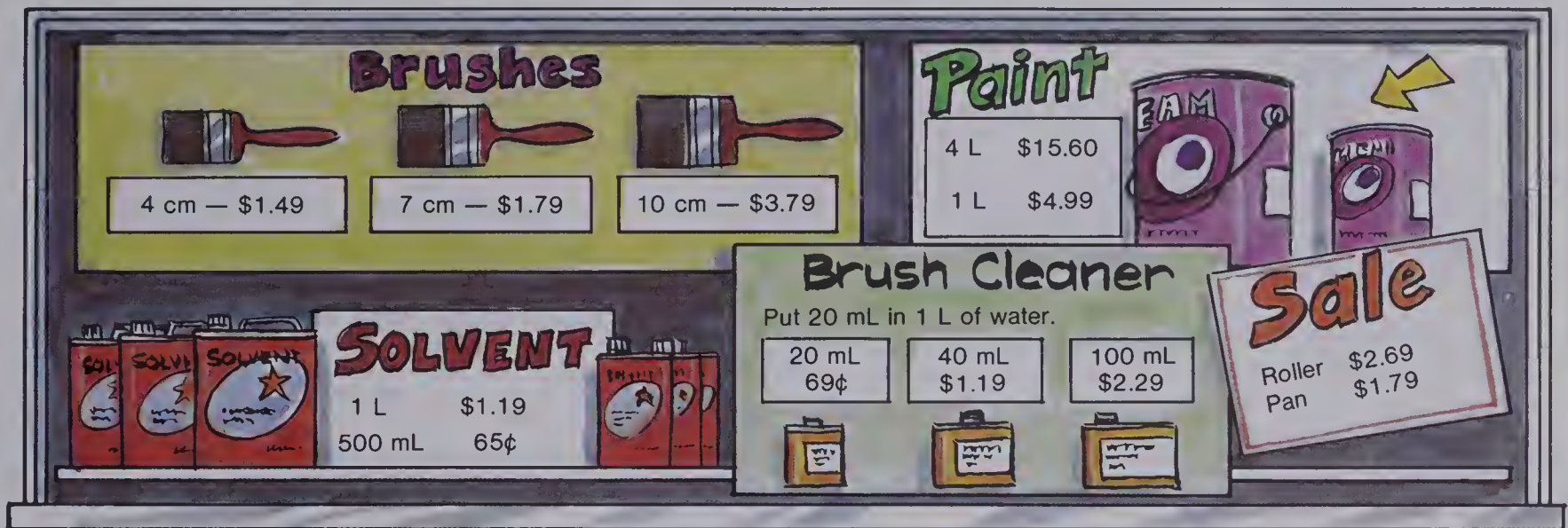
5. Harry went for a boat ride.  
The cost was \$1.25.  
What coins did he get in change?

6. Millie and Billie rented a canoe.  
They got \$1.25 in change.  
What did the canoe cost?



7. Nettie rode her bicycle around  
the park.  
How far did she go?

# The Paint Store



Refer to the paint store window.

- The Greens plan to paint their kitchen.  
2 L of paint cover 1 wall.  
There are 4 walls the same size.  
How much paint is necessary to paint the walls?
- Total paint needed for walls: yellow — 6 L, white — 2 L.  
Total cost?
- Paint needed for ceiling: 3 L — eggshell white.
  - How much would three 1 L cans cost?
  - How much would one 4 L can cost?
  - ★(c) Which should the Greens buy? Why?
- The Greens need 1 L and 500 mL of paint solvent.  
Cost?
- The Greens decided to buy brush cleaner.  
How many litres of brush cleaner would each make?
  - 20 mL
  - 40 mL
  - 100 mL

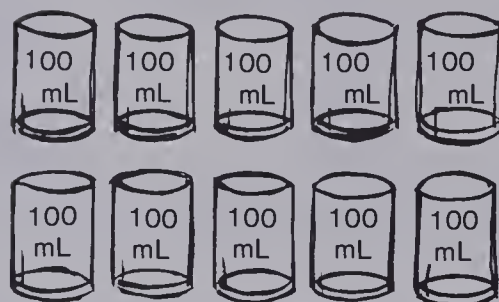


# Litres and Millilitres

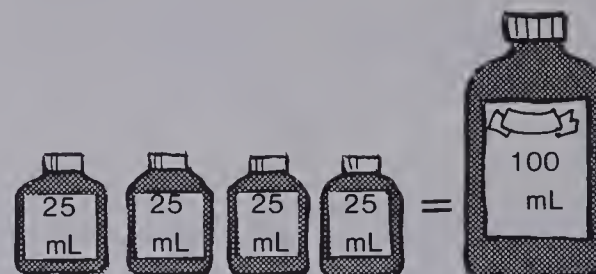
one litre = one thousand millilitres



=



1 L = 1000 mL



Medicine

## Exercises

1. Use five different containers.

Estimate the capacity of each: the larger ones in litres, the smaller ones in millilitres.

2. Complete.

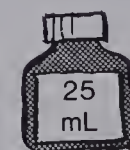
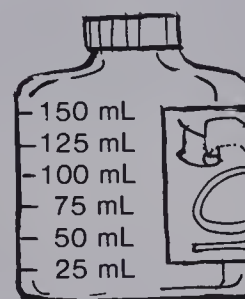
1 L = ■ mL

2 L = ■ mL

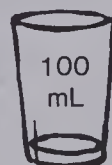
3. A large bottle of medicine holds 150 mL.

A small bottle holds 25 mL.

How many small bottles will be needed to fill a large bottle?

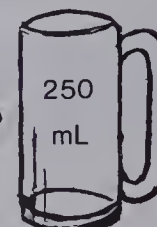
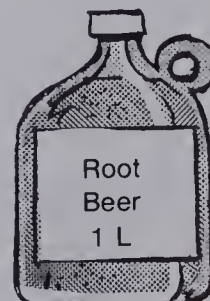


- 4.



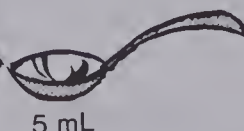
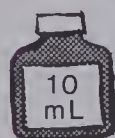
How many glasses?

- 5.



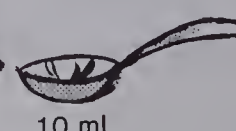
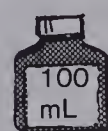
How many mugs?

- 6.



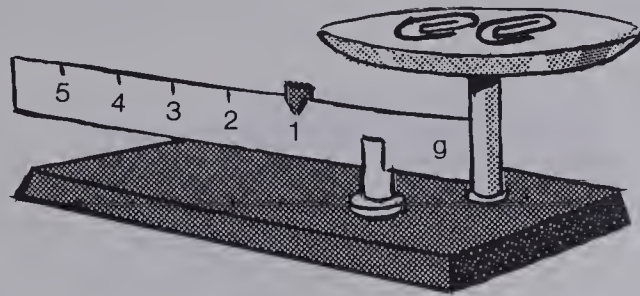
How many spoonfuls?

- 7.



How many spoonfuls?

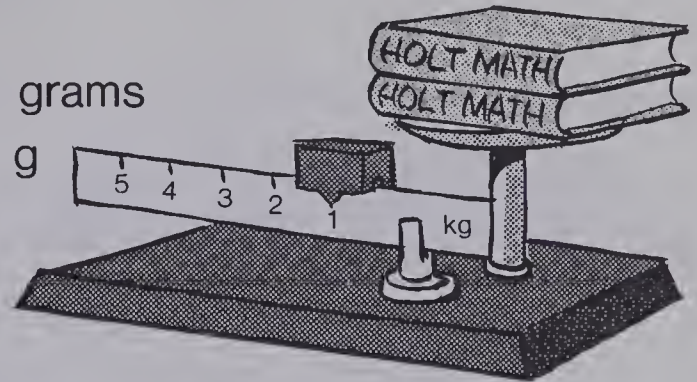
# Mass



1 g = mass of 2 paper clips

1 kilogram = 1000 grams

1 kg = 1000 g



1 kg = mass of 2 of these books

## Exercises

Copy and complete.

1. 2 paper clips = ■ g  
4 paper clips = ■ g  
10 paper clips = ■ g  
20 paper clips = ■ g  
200 paper clips = ■ g

3. 1 pumpkin = 2 kg  
2 pumpkins = ■ kg  
3 pumpkins = ■ kg  
10 pumpkins = ■ kg  
20 pumpkins = ■ kg

5. 1 kg = ■ g  
2 kg = ■ g  
3 kg = ■ g  
5 kg = ■ g  
★ 0.5 kg = ■ g

7. What is your mass?

2. 2 books = ■ kg  
4 books = ■ kg  
6 books = ■ kg  
10 books = ■ kg  
20 books = ■ kg

4. 1 sled = 3 kg  
2 sleds = ■ kg  
5 sleds = ■ kg  
10 sleds = ■ kg  
20 sleds = ■ kg

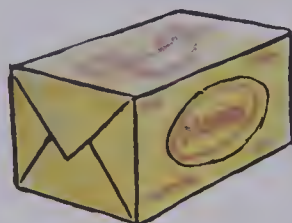
6. 1000 g = 1 kg  
2000 g = ■ kg  
3000 g = ■ kg  
★ 500 g = ■ kg  
★ 1500 g = ■ kg

8. What is the mass of your shoe?

# Shopping

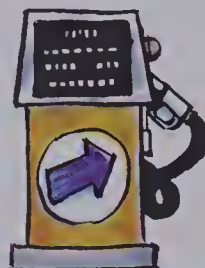
What unit do you think is used to measure each item?

1.



Butter

2.



Gasoline

3.



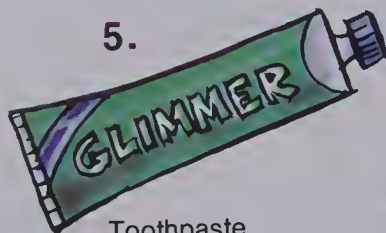
Cloth

4.



Cough  
syrup

5.



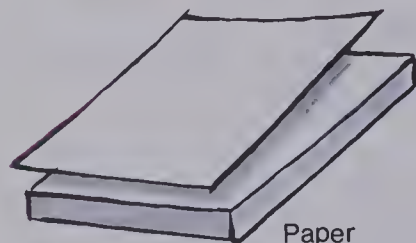
Toothpaste

6.



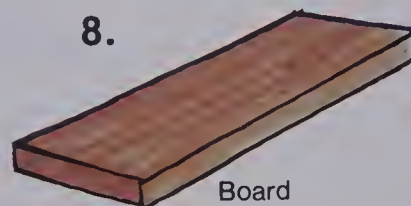
Tomatoes

7.



Paper

8.



Board

9.



Steak

Name 3 things you would find in a store measured in:

10. kilograms

11. metres

12. litres

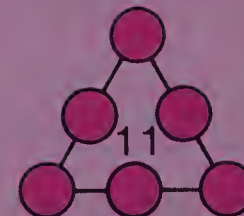
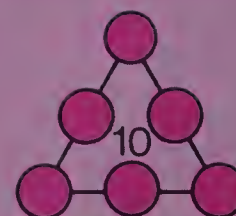
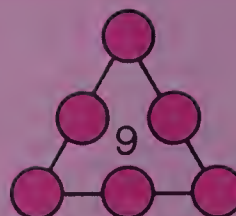
13. millilitres

14. centimetres

15. grams

## BRAINTICKLER

Use the numbers 1, 2, 3, 4, 5, and 6 so that each side of the triangles has the total indicated.





# Estimating

Estimate the measure as indicated in each.

1.



Gas tank of small car?

3.



Bath tub

Capacity?

5.



Mass of new baby?

7.



Time to walk around your school?

2.



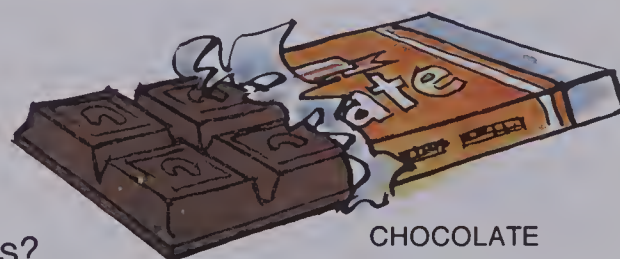
Length of block?

4.



How high can you jump?

6.



Mass?

CHOCOLATE

8.



Length of your middle finger?

Copy and complete.

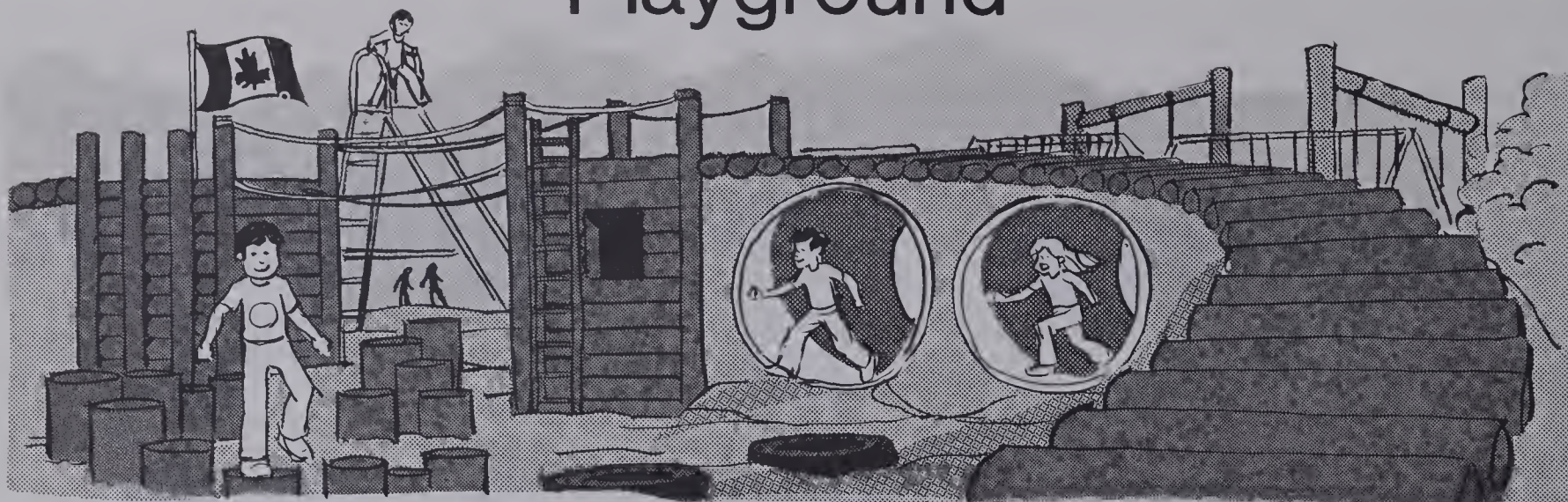
9. The circular road around town is about 30 ■ long.

10. The capacity of a pop bottle is about ■ mL.

11. The softball bat is about ■ cm long.

12. The truck can carry a load of about 2000 ■.

# Playground



Debbie and Paul explored the new playground at the city park. There were three groups of new swings. Debbie counted five swings in each group. Then the children ran through two concrete tunnels. A friend said the tunnels were very heavy — about 850 kg each!

At the north end of the playground, Paul climbed over a dozen tree trunk platforms. The shortest one was eighteen centimetres high. The tallest was the same height as a metre stick.

Later, Debbie and Paul raced to the large, red slide. Fourteen children stood in line waiting for their turn. Eighteen other children were riding log horses hung from ropes. Each horse had three seats. Paul and Debbie and four friends waited their turn for a ride.

Then they discovered the rope bridge. Four heavy ropes about 6 m long were stretched between two platforms. Each platform was made like a fort. A ladder with ten rungs led up to each fort. From the two large windows in one of the forts, Paul and Debbie could see the four sets of monkey bars. Five children were climbing on one of the sets; eight children were climbing on each of the other sets.

Find answers for each.

1. the total length of the ropes on the rope bridge
2. the number of new swings
3. the difference in heights of the tallest and shortest tree trunks
4. the total mass of the concrete tunnels
5. How many more swings than tree trunk platforms are there?
6. How many children climbed on the monkey bars?



# Drawing Pictures For Problems

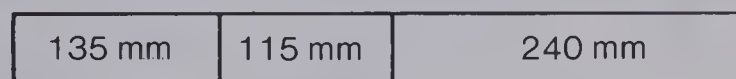
We can draw a picture to help us solve a problem.

A carpenter had 3 boards.

They were 135 mm, 115 mm,  
and 240 mm long.

How long are the boards altogether?

Draw a picture.



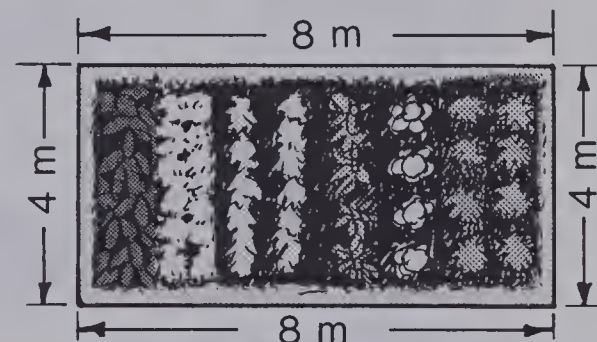
$$\text{Add: } 135 + 115 + 240 = 490.$$

The boards are 490 mm long altogether.

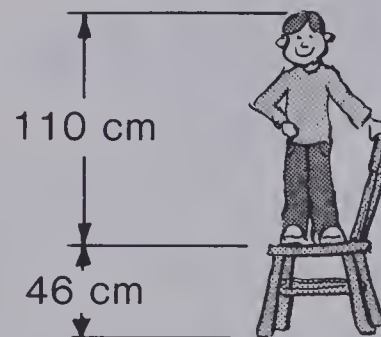
## Exercises

Solve these problems. Use the pictures to help you.

1. Mr. Ward put a fence around his garden.  
It was 8 m long and 4 m wide.  
How much fence did he use?



2. Bill is 110 cm tall.  
He stood on a chair.  
The chair is 46 cm tall.  
How high is Bill's head?



Solve these problems. Draw a picture to help you.

3. Sally had 4 ribbons.  
They were 17 cm, 24 cm, 36 cm,  
and 52 cm long.  
How much ribbon altogether?
4. Tanya biked 4 km on Monday,  
5 km on Tuesday, 6 km on  
Wednesday, and 2 km on Thursday.  
How far did she travel?



# Bicycle Shop



Adult \$149.50



Teen \$109.99



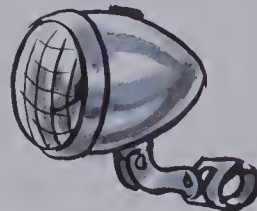
Junior \$87.49



Aerial \$5.95



Speedometer \$27.55



Light \$12.39



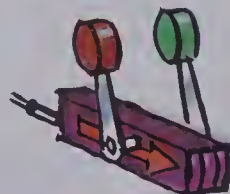
Horn \$4.89



Wheel reflectors  
\$1.89/set of four



Carrier \$13.75



Gearshift \$19.59



Banana seat \$15.79



Racing handlebars \$16.88



Handle grips \$2.95/pair



Tire \$5.75

Tube \$3.89



Mud flaps  
\$7.73/pair

Read the problem. Make each number sentence true.

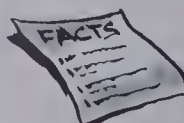
1. John had \$10.00.  
He bought a set of wheel reflectors and handle grips.  
How much money will he have left?

Step 1. Find answers to Professor Q's four questions.

Step 2.  $\$1.89 + \$2.95 = \blacksquare$  (Add cost of reflectors and hand grips.)

Step 3.  $\$10.00 - \$4.84 = \blacksquare$  (Subtract to find change.)

John will have  $\blacksquare$  left.



2. Mr. Finley wants to buy an adult bike and a teen bike.  
He has saved \$215.00.  
How much more money does he need?

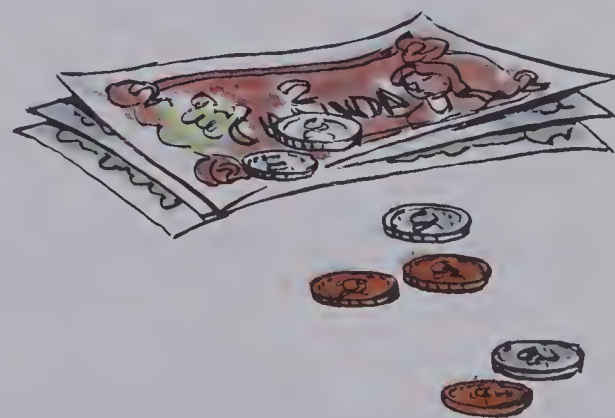
*Step 1.* Find answers to Professor Q's four questions.

*Step 2.*  $\$149.50 + \$109.99 = \blacksquare$  (Add cost of bikes.)

*Step 3.*  $\$259.49 - \$215.00 = \blacksquare$  (Subtract to find how much more money is needed.)

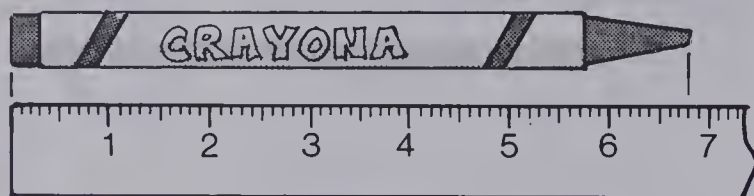
Solve these problems. Use the three steps to help you.

3. Sandy earned \$3.75 for baby-sitting.  
Then she earned \$4.60 more.  
How much more does she need to earn before she can buy racing handlebars for her bike?
4. Murray received \$15.00 from his Grandmother.  
He also received \$18.00 from his Uncle.  
How much more money does he need to buy the junior bike?
5. Brenda bought a carrier and a light for her bike.  
She had saved \$50.00.  
How much money will she have left?
6. Kathleen has saved \$140.00.  
She bought a teen bike and a banana seat.  
How much money will she have left?
7. Michael wanted to buy a speedometer and racing handlebars.  
He has saved \$31.45 from his paper route money.  
How much more money does he need?
8. Patrick bought a gearshift and a tire.  
How much change will he receive from \$30.00?



# Chapter Test

1. Write the size to the nearest centimetre.

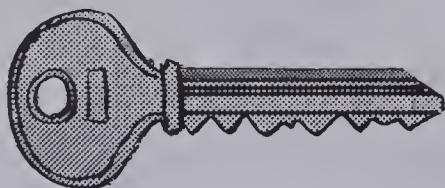


2. Draw a picture. Solve.

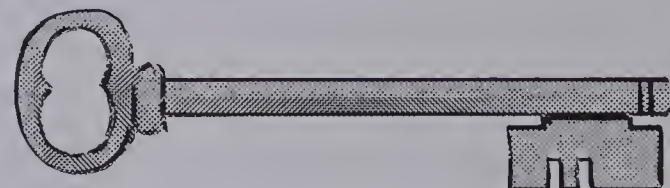
A spruce tree is 6.4 m tall.  
An apple tree is 3.9 m tall.  
How much taller is the spruce tree?

3. Measure to the nearest 10 mm.

(a)

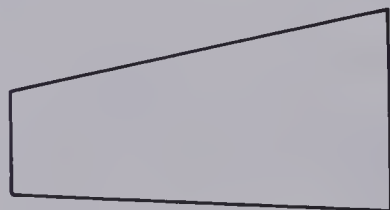


(b)



4. Use your ruler. Find the perimeter to the nearest centimetre.

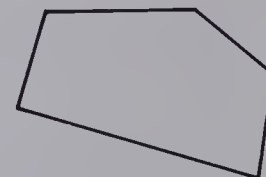
(a)



(b)



(c)



5. Find the average.

Sandy — 7 marbles,

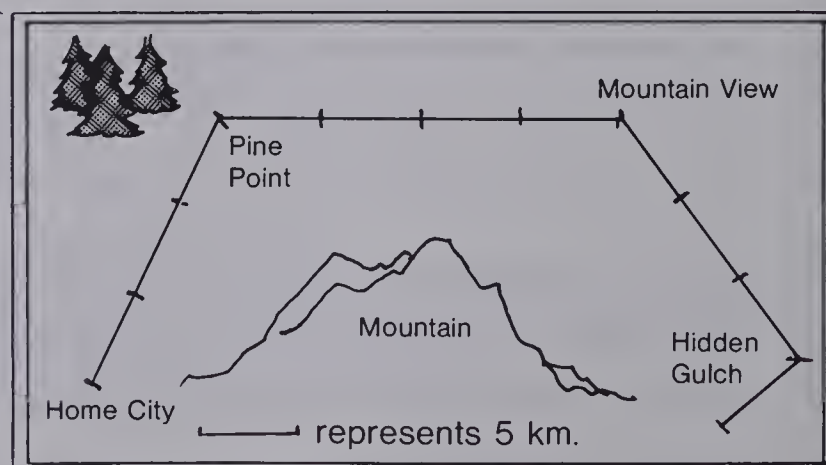
Suzanne — 5 marbles,

Clare — 6 marbles.

6. How far from Pine Point to Mountain View?

7. A kilogram of butter costs \$2.35.  
Karen pays with a \$5 bill for 2 kg.  
How much change should Karen get?

8. Ribbon costs 31¢ for 1 m.  
What is the cost of 4 m of ribbon?



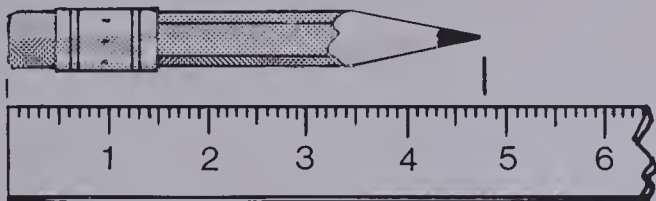
9. Is a kilometre farther than the distance around your playground?



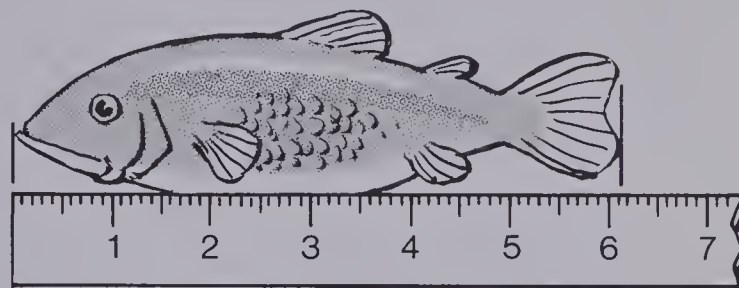
# Cumulative Review

Write the size to the nearest centimetre.

1.



2.



3.
  - (a) The height from the floor to your shoulder when you are standing.
  - (b) The height from the floor to your waist (belt) when you are standing.

- #### 4. What does each mean?

- (a) centi                                      (b) kilo                                      (c) deci

5. Write as a decimal.

- (a) three and two tenths  
(b) nine tenths

6. Write as a decimal.

- (a)  $1\frac{3}{10}$                       (b)  $\frac{9}{10}$

7. Find the perimeter in centimetres.



8. Add.

- $$\begin{array}{rcl} \text{(a)} & 1.3 & \text{(b)} \quad 1.8 \quad \text{(c)} \quad \$36.54 \\ & + 1.4 & + 0.9 \quad + 2.76 \end{array}$$

9. Subtract.

- |     |       |     |       |     |         |
|-----|-------|-----|-------|-----|---------|
| (a) | 2.9   | (b) | 2.6   | (c) | \$56.34 |
|     | - 1.3 |     | - 0.8 |     | - 8.81  |

10. Use  $<$ ,  $=$ , or  $>$ .

- (a) 249 ● 239      (b) 0.6 ● 1.2  
(c) 73 ● 73      (d) 11.8 ● 118

11. Multiply.

$$\begin{array}{r} 52 \\ \times 7 \\ \hline \end{array}$$

12. Divide.

$$6 \overline{) 136}$$

# Chapter 7

# Geometry and Pictographs

Construction of 3D Shapes



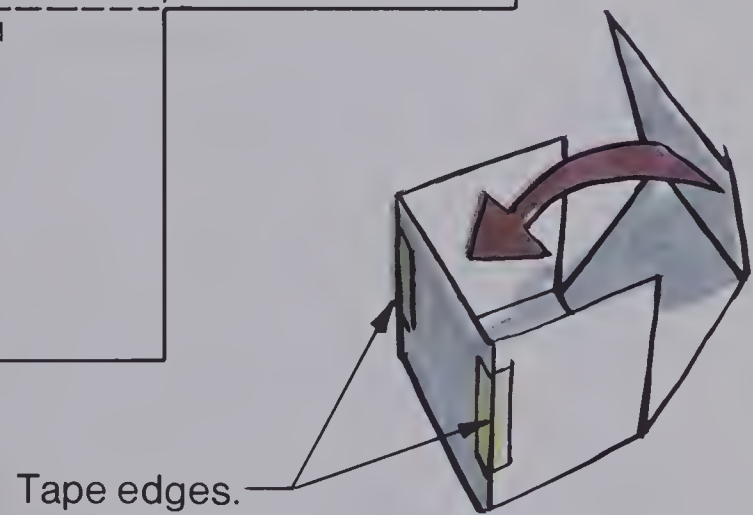
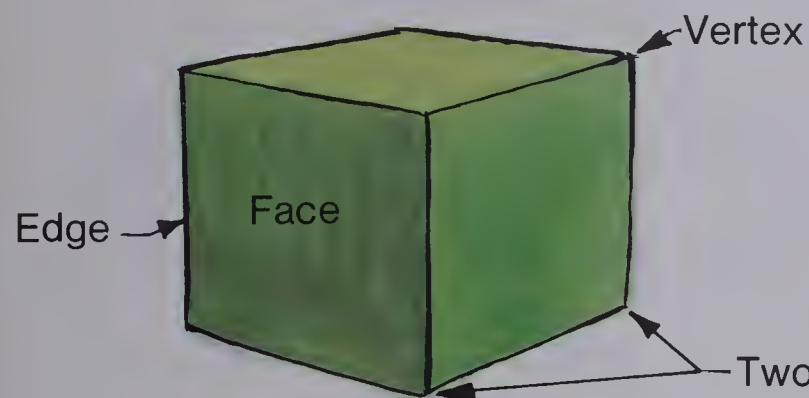
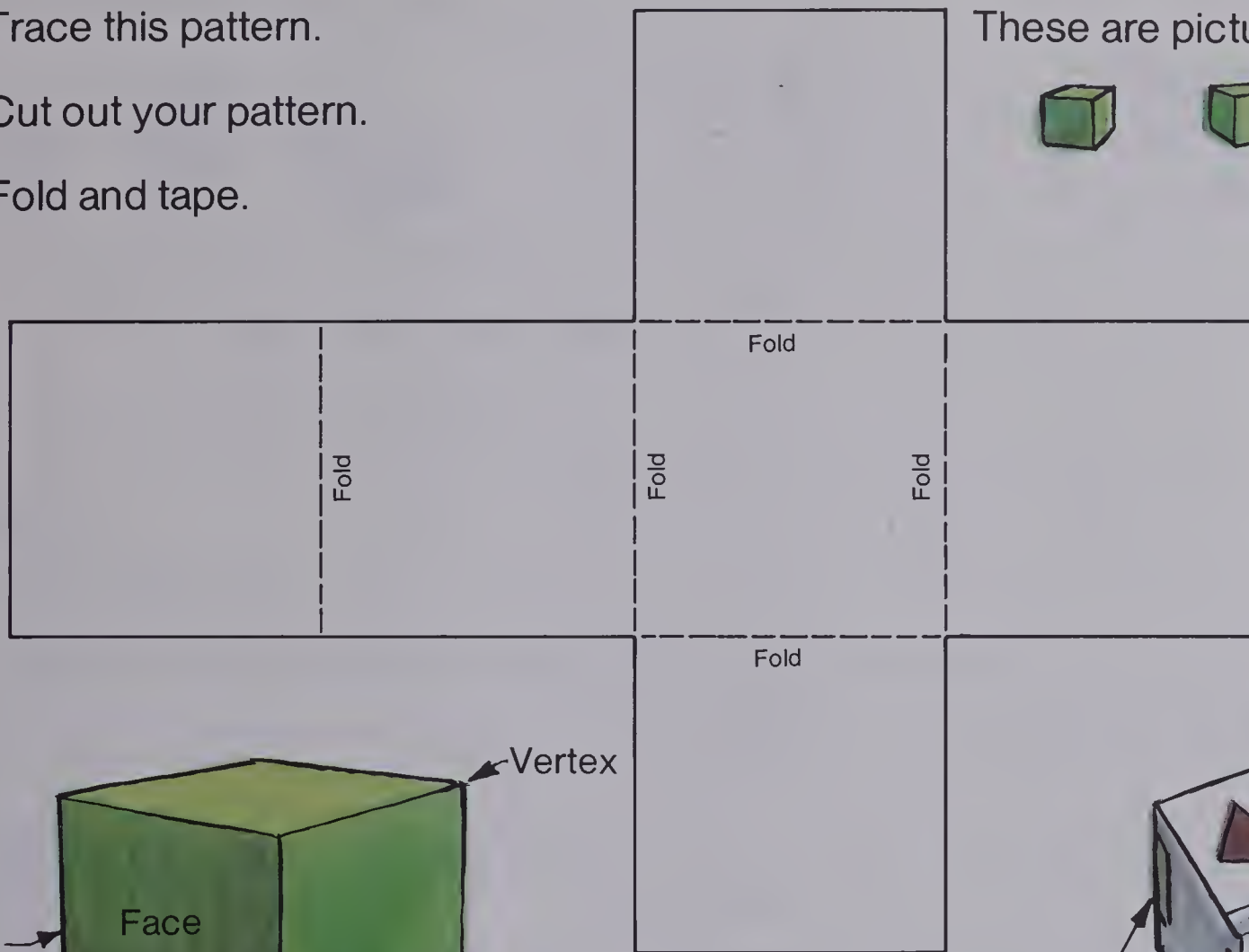
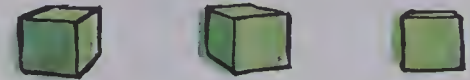
# Cubes

(a) Trace this pattern.

(b) Cut out your pattern.

(c) Fold and tape.

These are pictures of **cubes**.



## Exercises

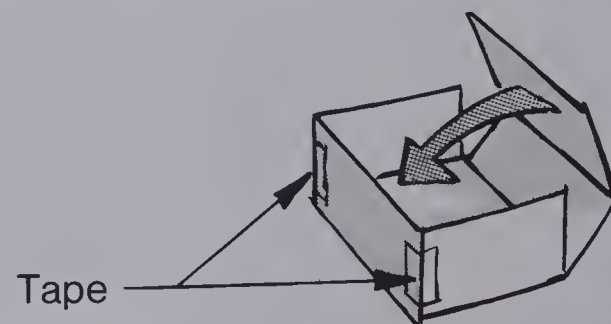
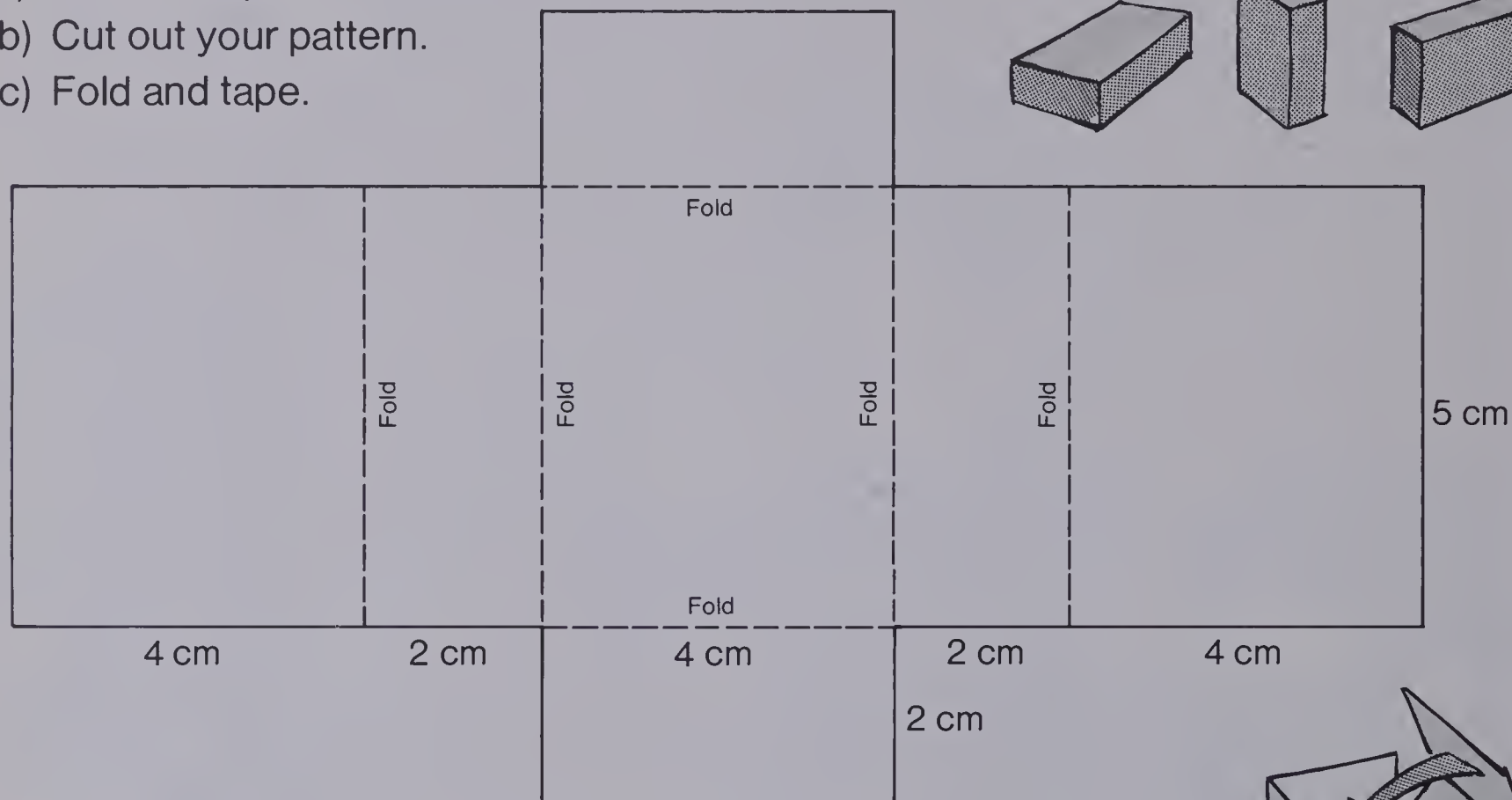
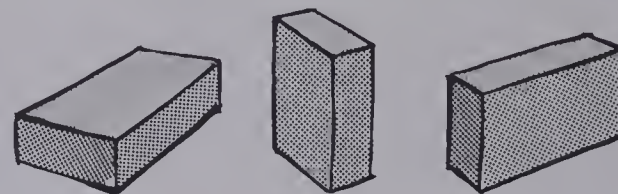
1. How many faces on a cube? How many edges? How many vertices?
2. Are the faces all the same shape? the same size?
3. Are the edges all the same length?



# Rectangular Prisms

These are pictures of **rectangular prisms**.

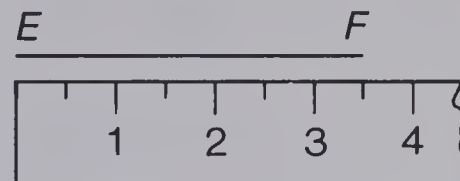
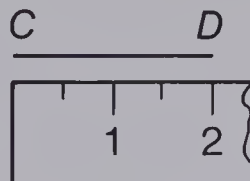
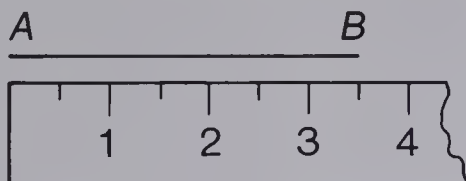
- (a) Trace this pattern.
- (b) Cut out your pattern.
- (c) Fold and tape.



## Exercises

1. How many faces on a rectangular prism? How many edges? How many vertices?
2. Are the faces all the same shape? the same size?
3. Are the edges all the same length?

# Congruent Segments



$AB$  and  $EF$  are the same length.

$AB$  and  $EF$  are **congruent segments**.

$AB$  and  $CD$  are not congruent.

## Exercises

1. Use your ruler.

Which of the following segments are congruent to  $MN$ ?

$M$  \_\_\_\_\_  $N$

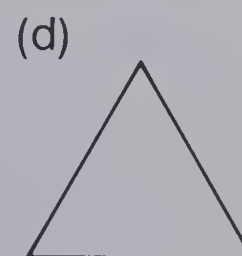
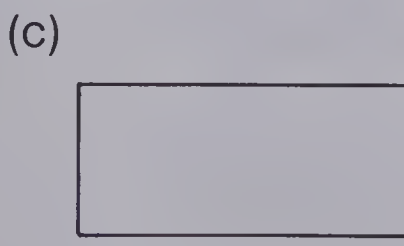
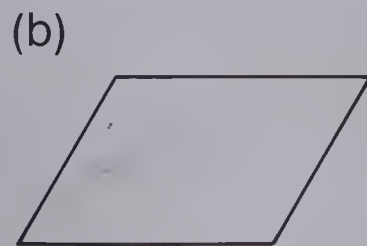
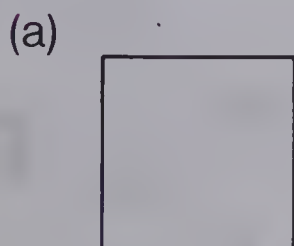
(a)  $R$  \_\_\_\_\_  $S$     (b)  $T$  \_\_\_\_\_  $V$     (c)  $W$  \_\_\_\_\_  $Z$

2. Use your ruler. Which segments are congruent? Name them all.

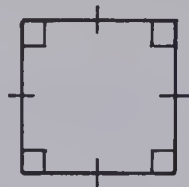
(a)  $R$  \_\_\_\_\_  $T$     (b)  $A$  \_\_\_\_\_  $S$     (c)  $V$  \_\_\_\_\_  $W$     (d)  $C$  \_\_\_\_\_  $D$

(e)  $P$  \_\_\_\_\_  $Q$     (f)  $M$  \_\_\_\_\_  $K$     (g)  $B$  \_\_\_\_\_  $Z$

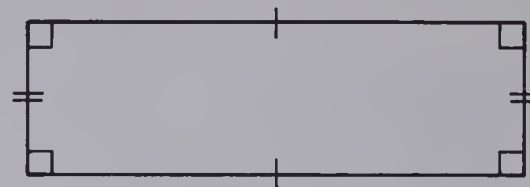
3. Which of these shapes have *all* sides congruent?



# Squares, Rectangles, and Solids



Square



Rectangle

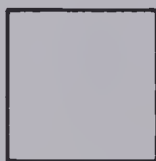
A **square** has 4 congruent sides and 4 square corners.

A **rectangle** has opposite sides congruent and 4 square corners.

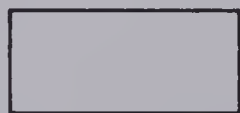
## Exercises

1. Which are squares and which are rectangles?

(a)



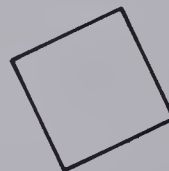
(b)



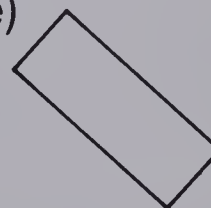
(c)



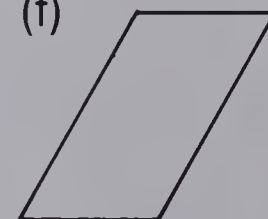
(d)



(e)



(f)

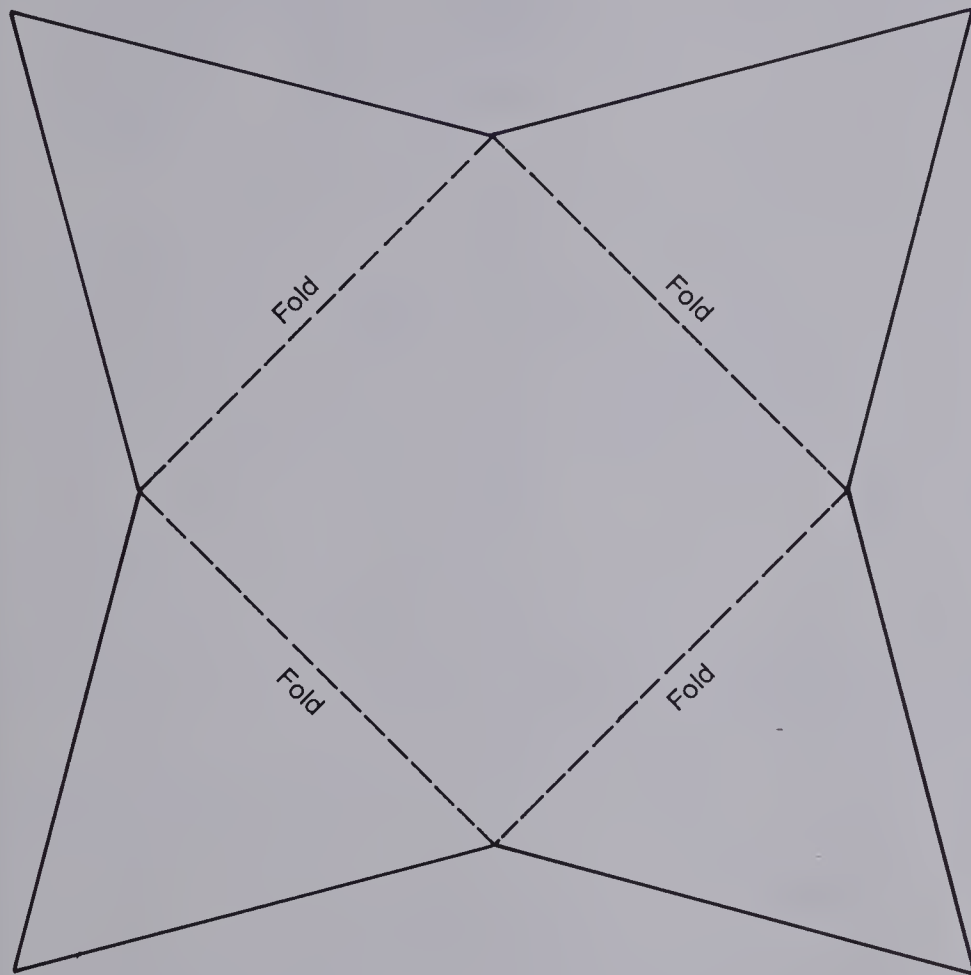


2. Use the cube you made from Page 185.  
What is the shape of its faces?
3. Use the rectangular prism you made from Page 186.  
What is the shape of its faces?
4. Name the shape each describes: cube or rectangular prism.
- (a) All faces are squares.
  - (b) Some faces are rectangles.
  - (c) Some faces, not all, are squares.
  - (d) All edges are the same length.

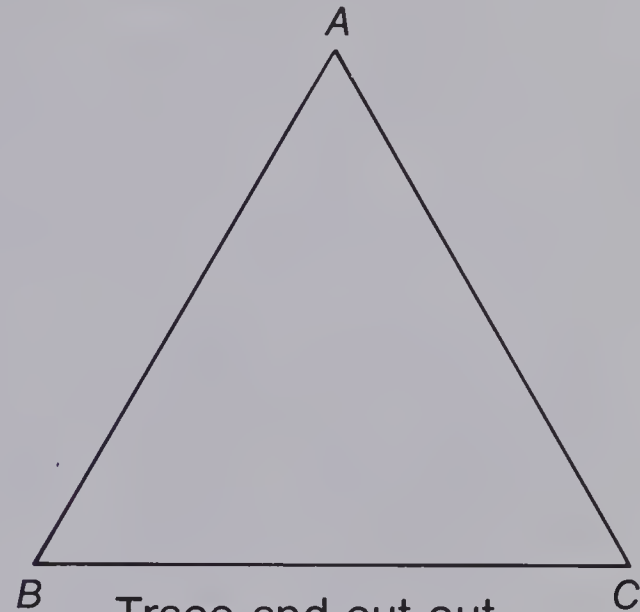


# Triangles and Pyramids

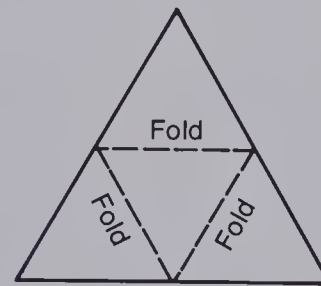
Trace this pattern to make a **pyramid**.



Fold and tape to make a pyramid.



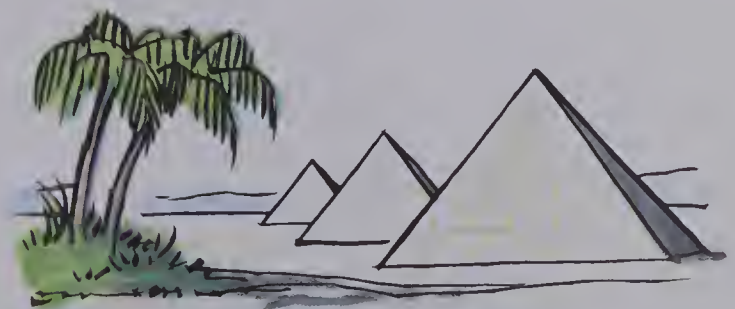
Trace and cut out pattern of  $\triangle ABC$ .  
Use it to make a pattern for a pyramid.



This pattern also makes a pyramid.

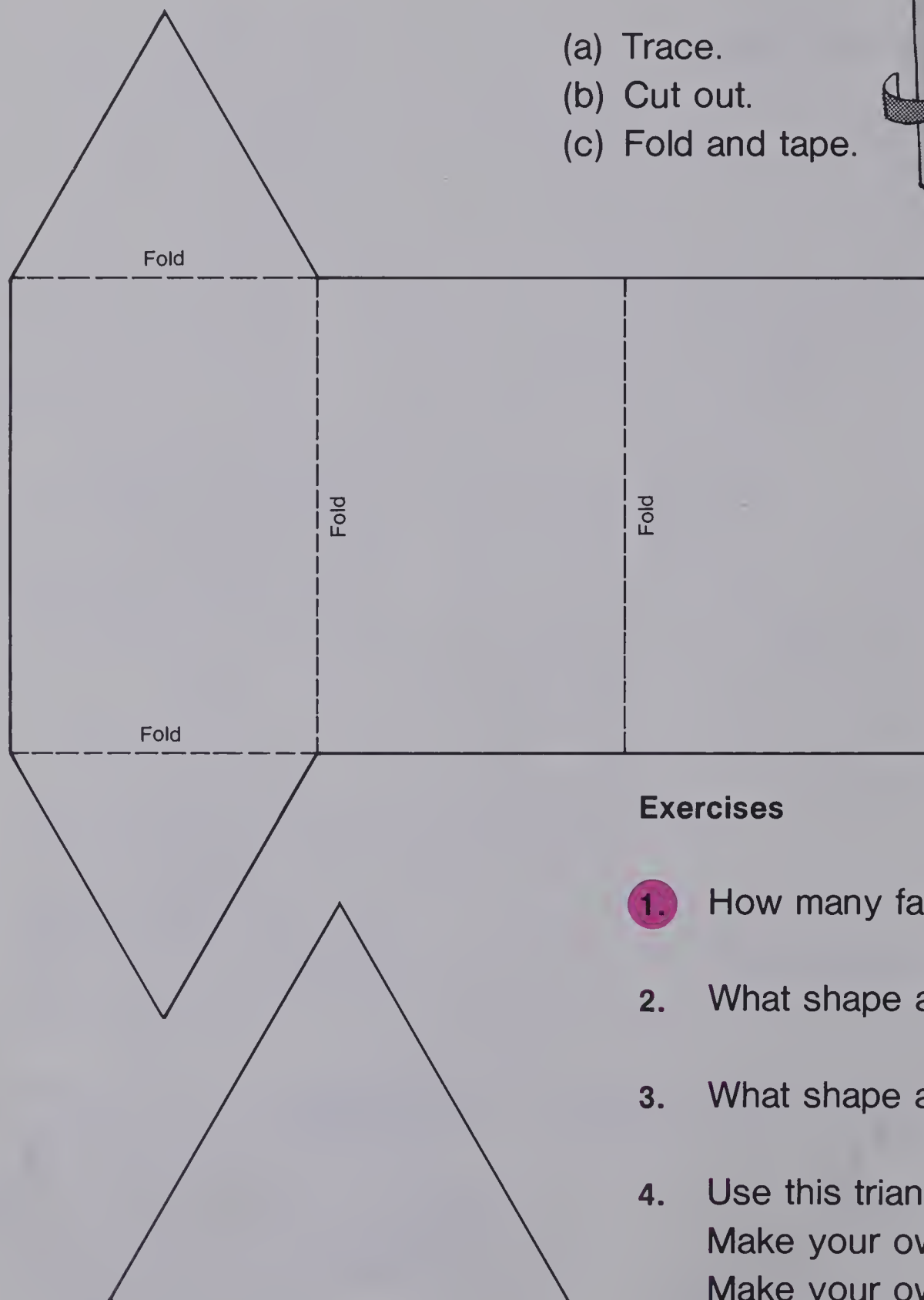
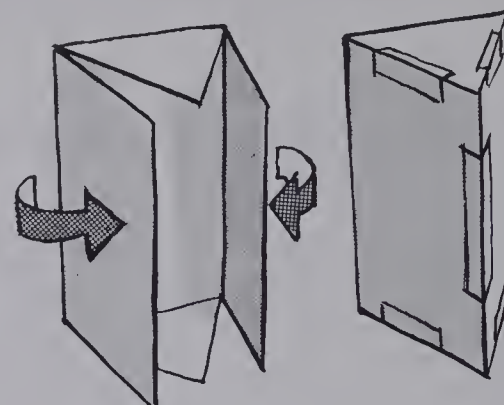
## Exercises

1. What shape is the bottom of the pyramid?
2. What shape are the sides?
3. How many edges? vertices? faces?



# Prisms

- (a) Trace.
- (b) Cut out.
- (c) Fold and tape.

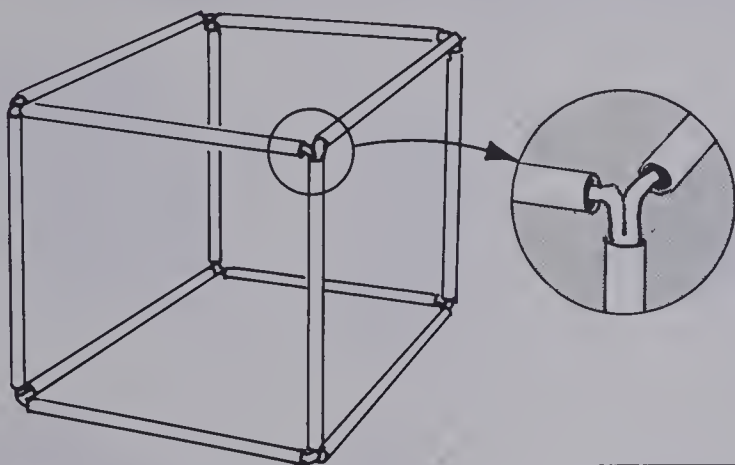


## Exercises

1. How many faces? edges? vertices?
2. What shape are the top and bottom?
3. What shape are the sides?
4. Use this triangle.  
Make your own pattern for a prism.  
Make your own model.

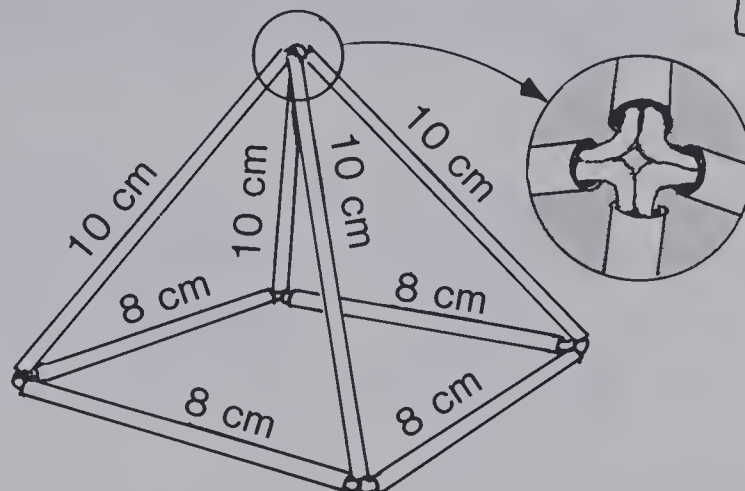
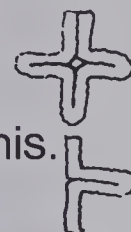
Make a cube.

1. Use 12 straws the same length (10 cm).
2. Use 8 pipe cleaners.
3. Bend each pipe cleaner.
4. Put this shape together.



Make this pyramid.

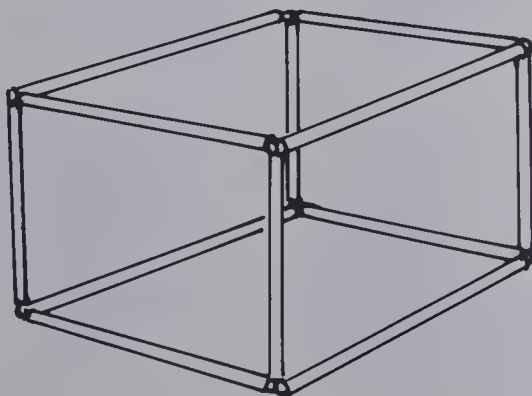
1. Use 4 straws 8 cm long.
2. Use 4 straws 10 cm long.
3. Bend one pipe cleaner for the top point.
3. Bend 4 pipe cleaners like this.



## Skeleton Models

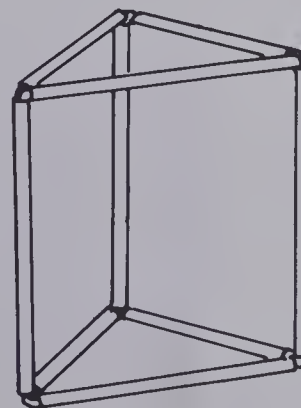
Make this prism.

1. Use 4 straws 10 cm long.
- Use 4 straws 8 cm long.
- Use 4 straws 6 cm long.
2. Use 8 pipe cleaners.
3. Put this shape together.



Make this prism.

1. Use 6 straws 8 cm long.
- Use 3 straws 10 cm long.
2. Use 6 pipe cleaners.
- Put this shape together.

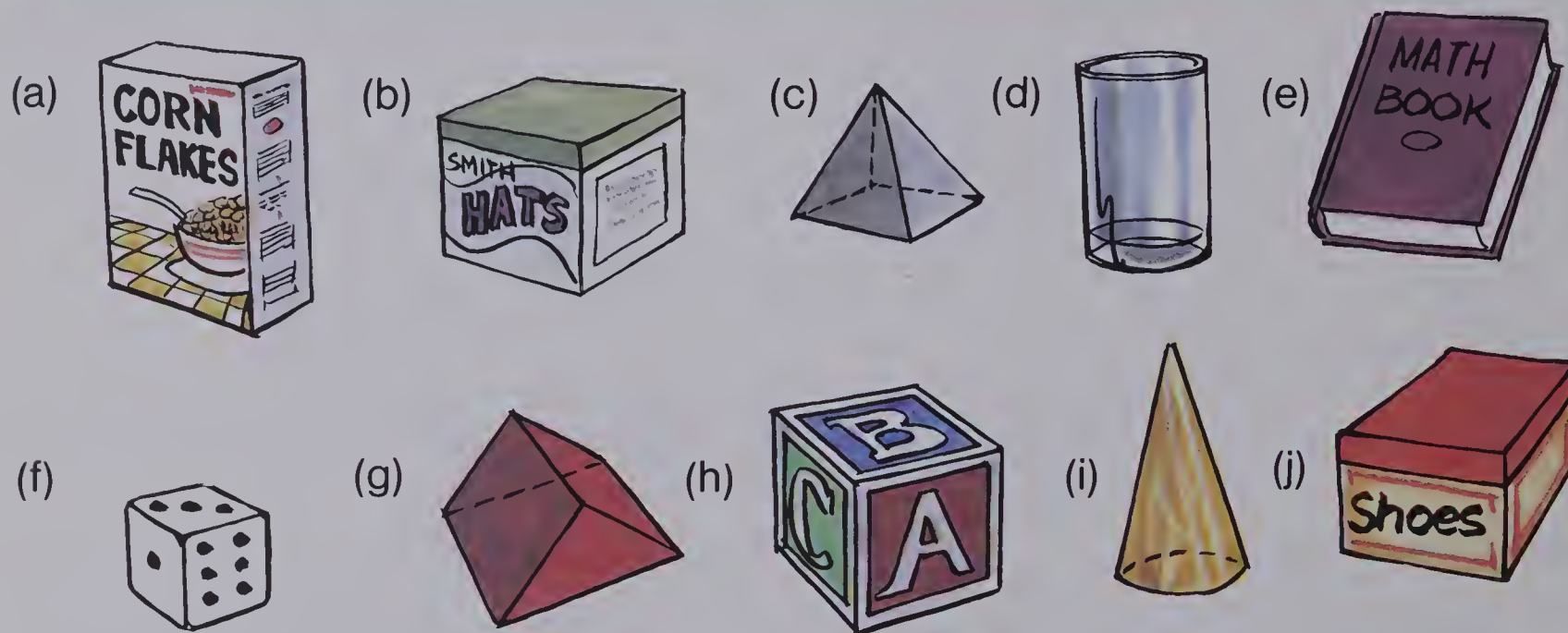




# Solids

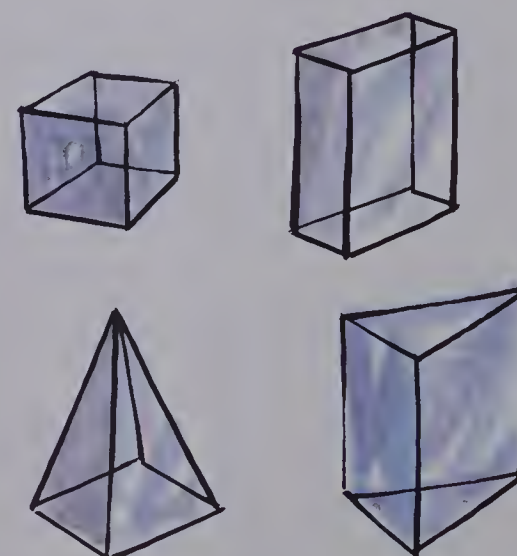
1. Make this chart.  
Write the letter of each shape in the correct box.

Cube	Prism	Pyramid

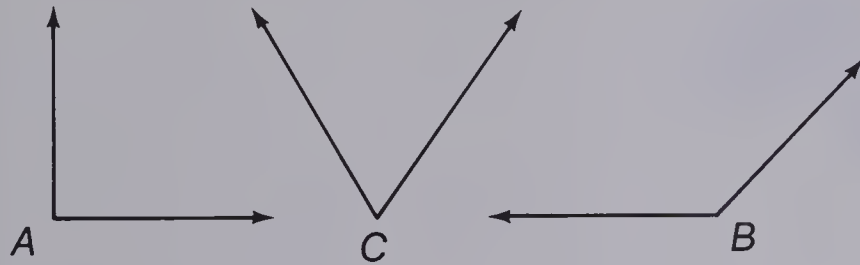


2. Copy and complete this chart. Use your models.

Shape	Number of		
	Faces	Edges	Vertices
Cube			
Rectangular prism			
Pyramid			
Triangular prism			



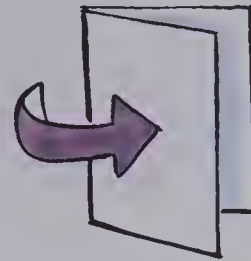
# Right Angles



A is a **right angle**.

C and B are not right angles.

Make a right-angle checker.



Fold a piece of paper.

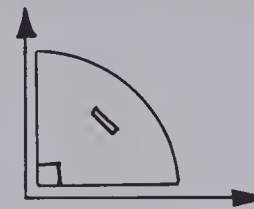


Fold again.



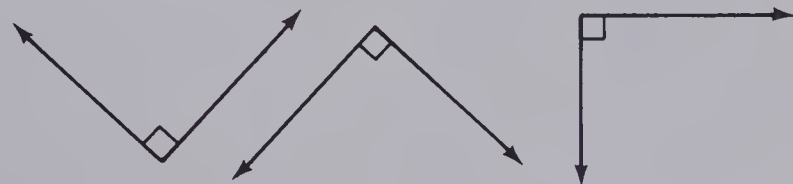
Staple and cut.

You now have a **right-angle checker**.

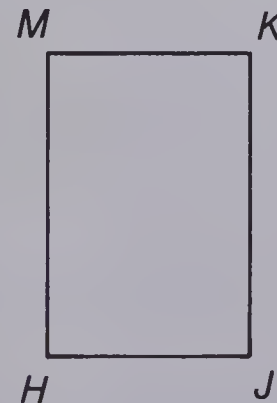
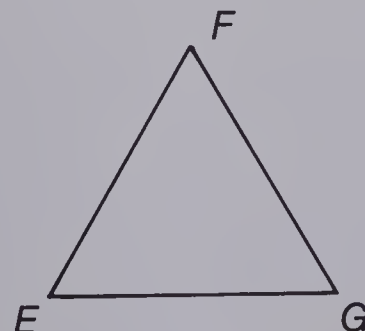
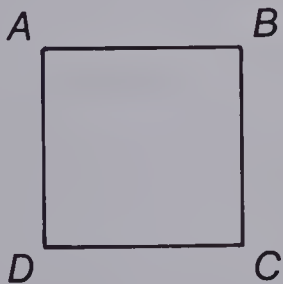


## Exercises

- Trace your right-angle checker to draw 3 right angles in different positions. Mark each with a square.



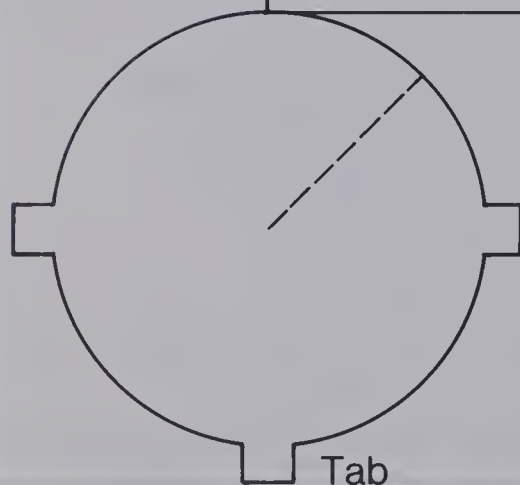
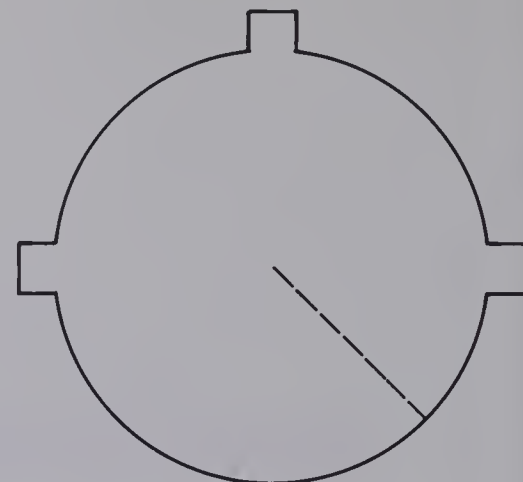
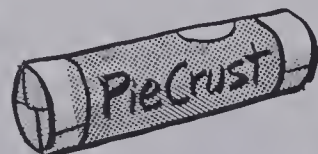
- Use your right-angle checker. Which corners are right angles?



- Check the corners on the models you have made. How many right angles are there in each?

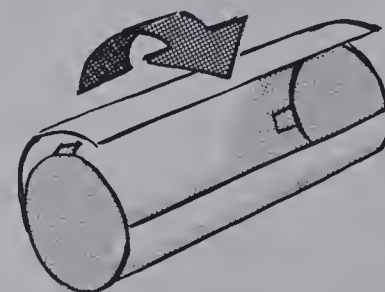
# Cylinders

These are models of **cylinders**.



Make a cylinder.

- (a) Trace and cut out.
- (b) Roll and glue tabs inside.
- (c) Tape joint.



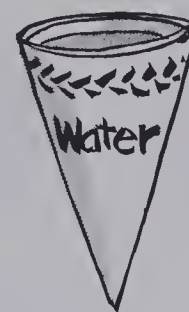
## Exercises

1. How many flat surfaces does a cylinder have?
2. How many curved surfaces are there?
3. What is the shape of the ends of a cylinder?



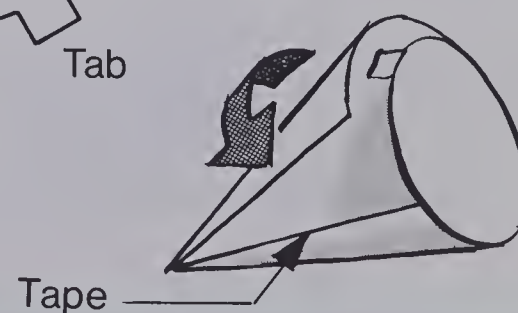
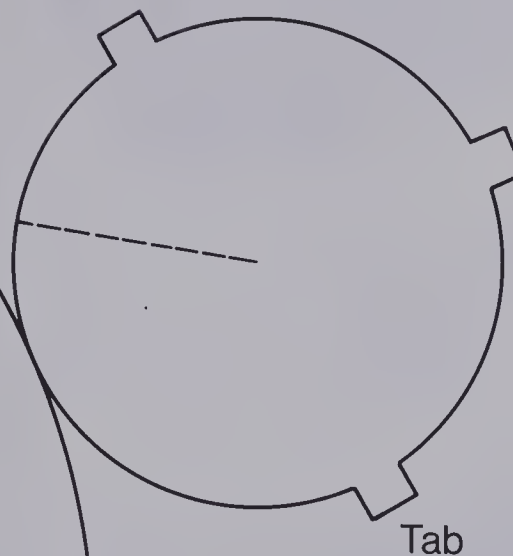
# Cones

These are models of **cones**.



Make a model.

- (a) Trace and cut out.
- (b) Roll and glue tabs inside.
- (c) Tape.

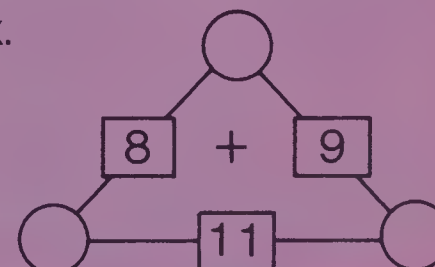


## Exercises

1. How many flat surfaces does a cone have?
2. How many curved surfaces are there?
3. What is the shape of the end?
4. How does a cone differ from a cylinder?
5. How is a cone like a cylinder?

## BRAINTICKLER

Use the numbers 0 to 10.  
The sum of two corners is  
in the box.



# Spheres

Make a **sphere**.

Use Plasticine.



Shape Plasticine  
into a ball.

Models

Spheres



## Exercises

1. What is another name for a ball?
2. How many flat surfaces does a sphere have?
3. Name 5 objects that have the shape of a sphere.

4. Match.

(i) Cone

(ii) Cylinder

(iii) Sphere

(a)



(b)



(c)



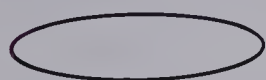
(d)



# Sorting

Refer to shapes (a) to (h) for Questions 1, 2, and 3.

1. Draw two loops and label as shown.  
Place the letter of each shape in one of the loops.



All surfaces flat.



Not all surfaces flat.

2. Repeat Number 1 using these loops.



All edges congruent.



Not all edges congruent.

3. (a) Repeat Number 1 using these loops.



At least one  
curved surface.



No curved surfaces.

(b) How does this compare with Number 1?

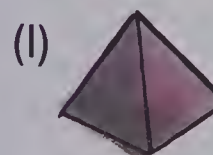
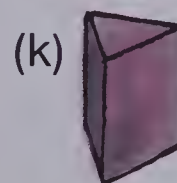
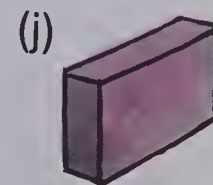
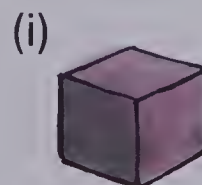
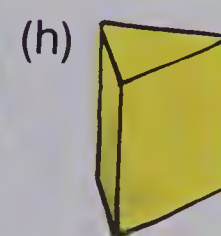
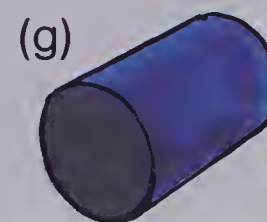
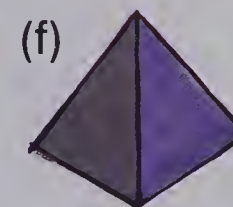
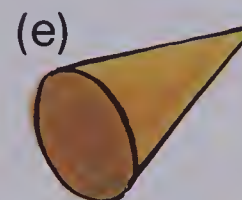
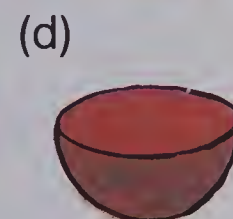
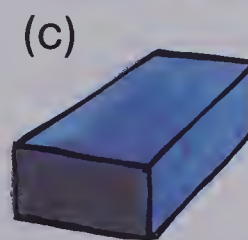
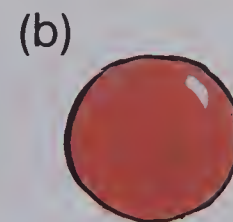
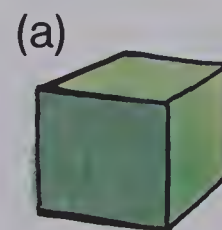
4. Use these loops to sort the shapes in (i), (j),  
(k), and (l).



All angles are  
right angles.



Not all angles  
are right angles.




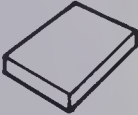




# Classifying Shapes




Copy the tables.

Place a check mark or number in each space that fits.

1.

Shapes	Properties				
	All angles right angles	All surfaces flat	All edges congruent	All faces have 4 sides	Some faces have 3 sides
					
					
					
					

2.

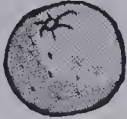


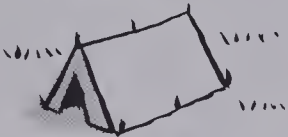

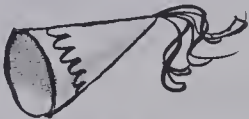
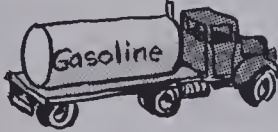





Shape	Properties				
	All surfaces curved	Only one flat surface	Two flat surfaces	One pointed end	Name
					
					
					

# Naming Solids




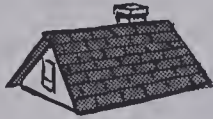




1. Copy each name.

Write beside each name the letter of each shape that looks like the solid named.





Cube  
Pyramid  
Cone  
Cylinder  
Sphere  
Prism

(a) 	(b) 	(c) 
(d) 	(e) 	(f) 
(g) 	(h) 	(i) 
(j) 	(k) 	(l) 

2. Write the name for each shape.

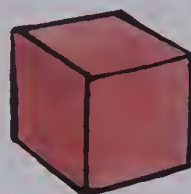
			
			

3. How many rectangles, squares, and triangles does each shape have?

Shape	Rectangles	Squares	Triangles
			
			
			
			

# Cutting Models

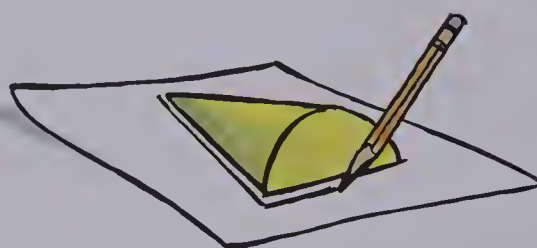
Make these shapes from Plasticine.



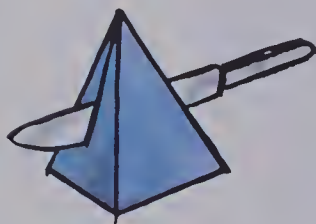
## Exercises

Use a knife or wire to cut each shape as shown.  
Trace the new faces. Name each shape you draw.

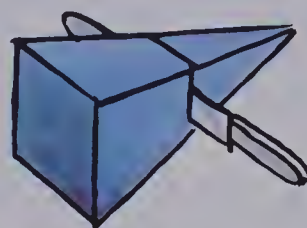
1.



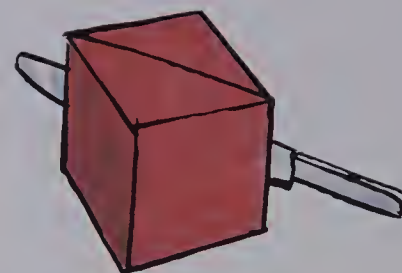
2.



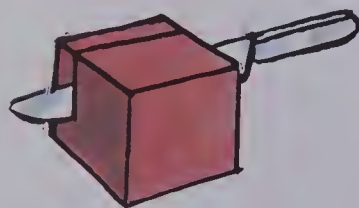
3.



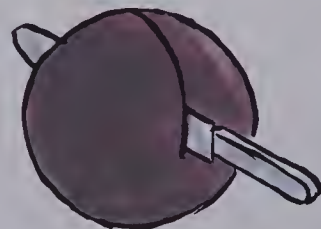
4.



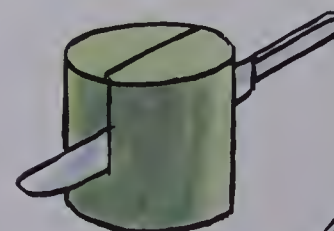
5.



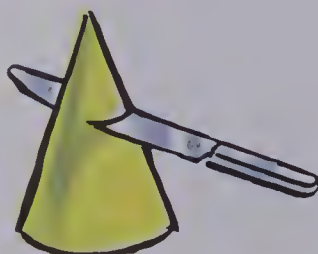
6.



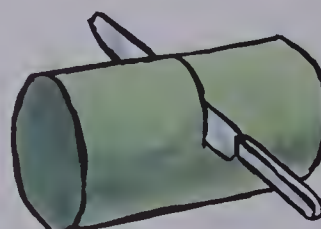
7.



8.



9.

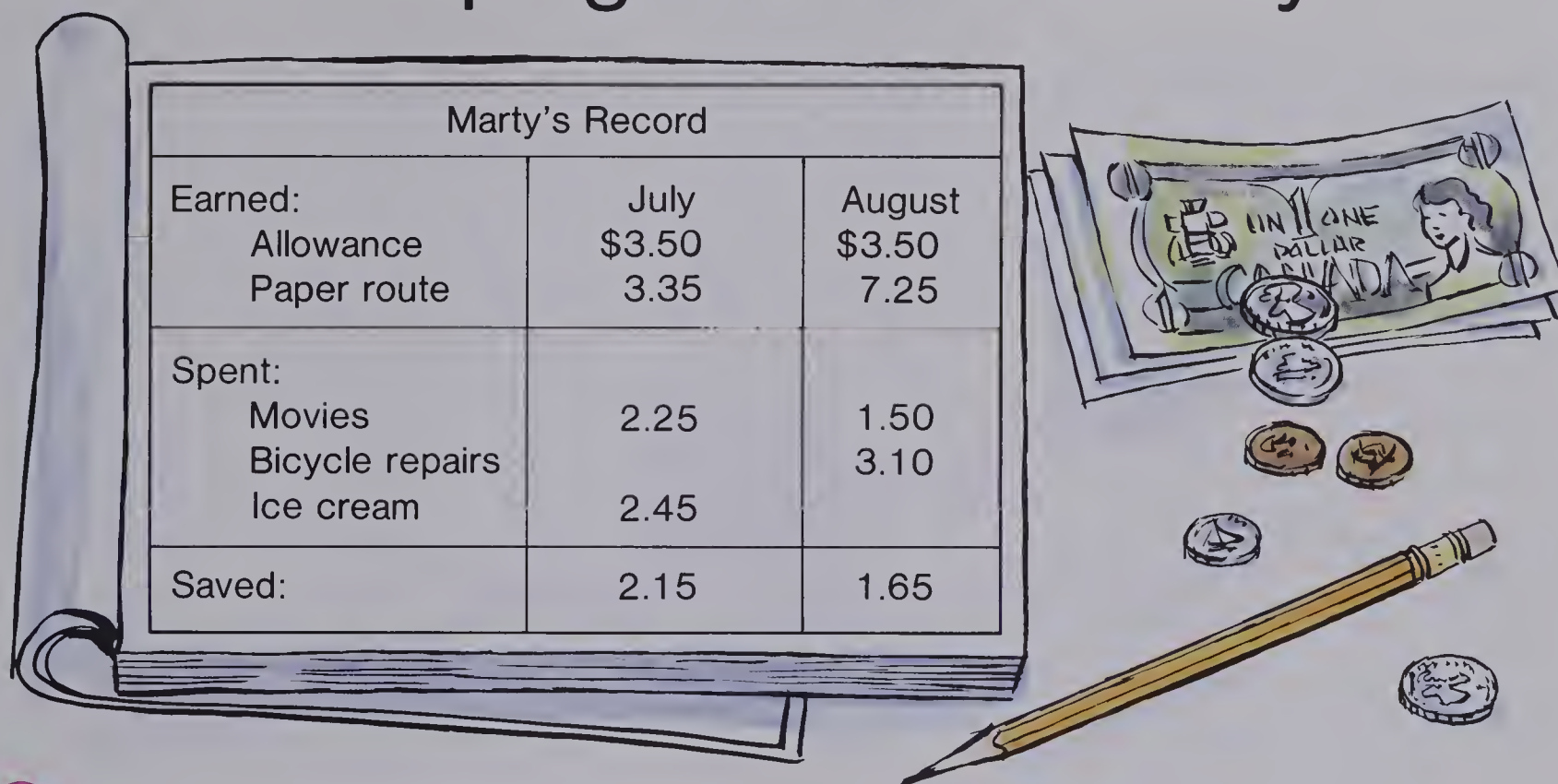


10.





# Keeping Track of Money



Earned:	July	August
Allowance	\$3.50	\$3.50
Paper route	3.35	7.25
Spent:		
Movies	2.25	1.50
Bicycle repairs		3.10
Ice cream	2.45	
Saved:		
	2.15	1.65

1. How much did Marty earn in July?
2. How much allowance did Marty get in the two months?
3. How much did Marty earn in August?
4. How much did Marty spend in July? August?
5. How much did Marty save in the two months?
6. How much more did Marty save in July than in August?
7. How much more did Marty earn in August than in July?
8. How much more did Marty spend on movies in July than in August?
- ★ 9. How much more did Marty spend in July than in August?
- ★ 10. How much more did Marty earn than he spent in July? in August?

# Reading Charts

A road chart is shown giving the distances in kilometres between cities.

A	B	Lethbridge	Calgary	Dawson Creek, B.C.	Edmonton	Jasper	Medicine Hat
Lethbridge			218	1105	517	632	170
Calgary		218		888	299	1018	293
Dawson Creek, B.C.		1105	888		592	859	1172
Edmonton		517	299	592		367	583
Jasper		632	1018	859	367		711
Medicine Hat		170	293	1172	583	711	

To find the distance from Edmonton to Dawson Creek:

- Find Edmonton in Column A.
- Go across the row to the Dawson Creek Column.
- Read the distance in kilometres: 592 km.

## Exercises

Use the road chart in the display. Find the distance from:

- Lethbridge to Edmonton
- Jasper to Medicine Hat
- Dawson Creek to Calgary
- Calgary to Jasper
- Medicine Hat to Lethbridge
- Edmonton to Medicine Hat
- Jasper to Edmonton
- Medicine Hat to Jasper.

# Tune Up

Add.

$$\begin{array}{r} 1. \quad 36 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 71 \\ + 29 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 845 \\ + 154 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 339 \\ + 579 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 560 \\ + 209 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 4231 \\ + 1612 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 1294 \\ + 6158 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 3141 \\ + 1493 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 1411 \\ + 2314 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 4103 \\ + 1099 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 11. \quad 82 \\ - 36 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 98 \\ - 79 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 412 \\ - 203 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 874 \\ - 587 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 603 \\ - 104 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 7889 \\ - 2581 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 3894 \\ - 1766 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 4536 \\ - 1469 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 9156 \\ - 6467 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 8700 \\ - 2711 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 21. \quad 18 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 46 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 36 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 72 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 32 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 71 \\ \times 1000 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 327 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 258 \\ \times 7 \\ \hline \end{array}$$

$$29. \quad 3 \times 1 \times 5 = \blacksquare$$

Divide.

$$30. \quad 9 \overline{)81}$$

$$31. \quad 5 \overline{)95}$$

$$32. \quad 8 \overline{)168}$$

$$33. \quad 5 \overline{)455}$$

$$34. \quad 8 \overline{)174}$$

$$35. \quad 7 \overline{)87}$$

$$36. \quad 5 \overline{)137}$$

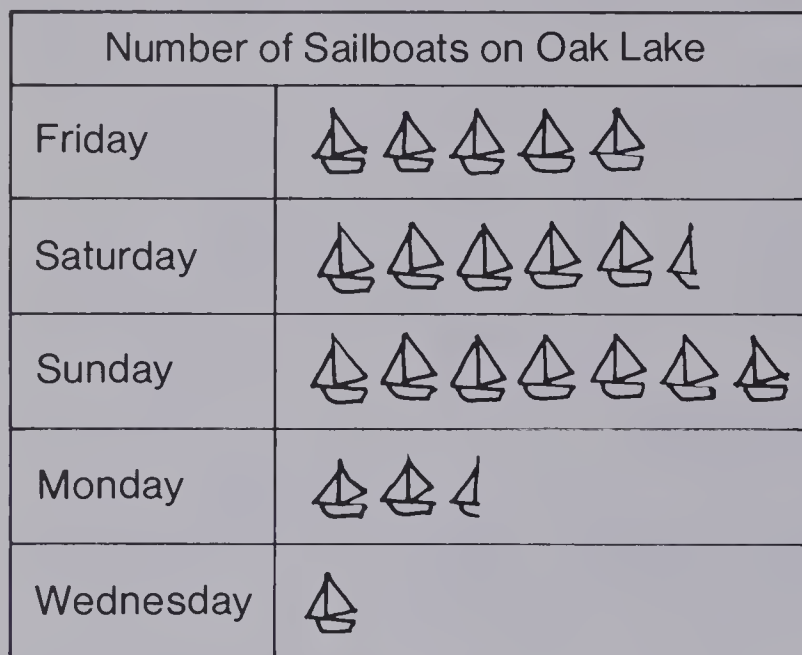
$$37. \quad 6 \overline{)172}$$

$$38. \quad 3 \overline{)279}$$

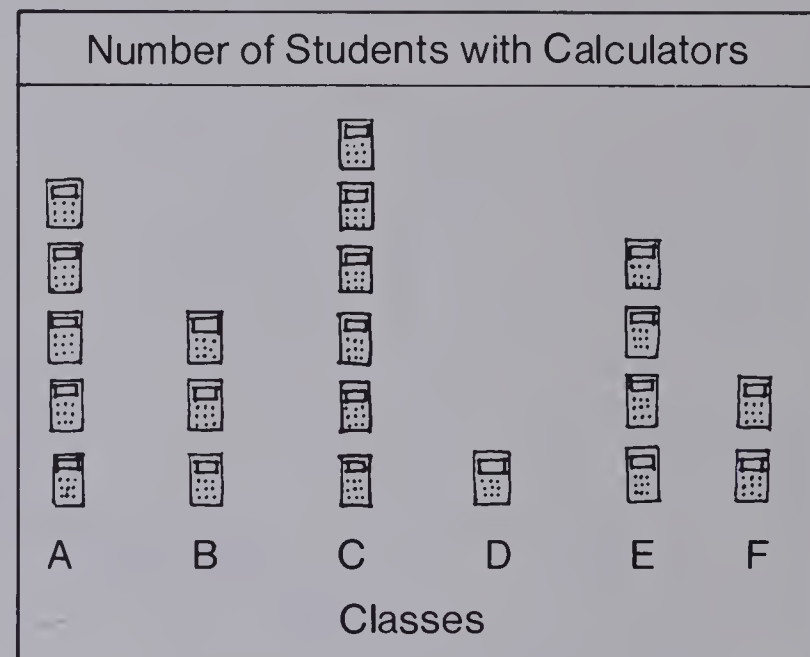
$$39. \quad 10 \overline{)400}$$



# Pictographs






 represents 2 boats.



 represents 5 students.

Use the pictographs in the displays.

- How many sailboats are represented by  ?
  - What days does the graph show?
  - What does the symbol  represent?
  - How many sailboats were on the lake each day?
  - On which day were there twice as many as on Monday?
  - On which day were the fewest boats on the lake?
- What does the symbol  represent?
  - In which class do the most students have calculators? the fewest?
  - How many calculators are there in all the classes together?
- Why are these graphs called pictographs?

4. Copy and complete the pictograph to show this information. Label.

Brian 8  
Kathy 22  
Brenda 7  
Hank 18  
Jan 15



Number of Books Students Read in a Year	
Brian	
Kathy	
Brenda	
Hank	
Jan	

 represents 2 books.

Make a pictograph for each set of information. Label each.

Select your own symbol. Decide how many each symbol will represent.

5.

Millimetres of Rain	
Monday	5 mm
Tuesday	10 mm
Wednesday	0 mm
Thursday	20 mm
Friday	25 mm
Saturday	35 mm
Sunday	9 mm

6.

Kites Flown in the Parks	
Central Park	8 kites
River Park	24 kites
Hillside Park	15 kites
Crescent Park	7 kites
Memorial Park	5 kites

7.

Favourite Sport of Students	
Swimming	12 students
Hiking	16 students
Bowling	2 students
Ball	5 students
Skiing	4 students
Skateboarding	15 students

8.

Birds Seen on a Hike	
Ducks	95
Red-wing Blackbirds	35
Robins	20
Bluebirds	5
Geese	75
Jays	55

# Collecting Data

Mark and Mary used tally marks to record the number of each animal they saw on their hike.



Number of Animals We Saw While Hiking	
Squirrels	### ### ### ### /
Moose	///
Coyotes	### /
Sheep	### ## ### //
Chipmunks	### ///



1. How many of each animal did Mark and Mary see?

2. How would they indicate 3 bears? 19 deer?

Prepare a chart using tally marks to show the information.

Label your chart.

3.

Cars Passing School	
Red	8
Yellow	27
Green	5
Blue	19

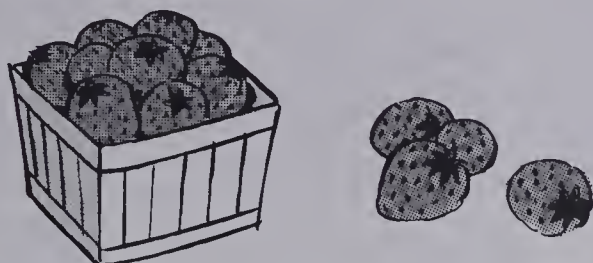
4.

Blossoms on One Plant	
Wild Rose	38
Columbine	17
Aster	12
Bluebell	28

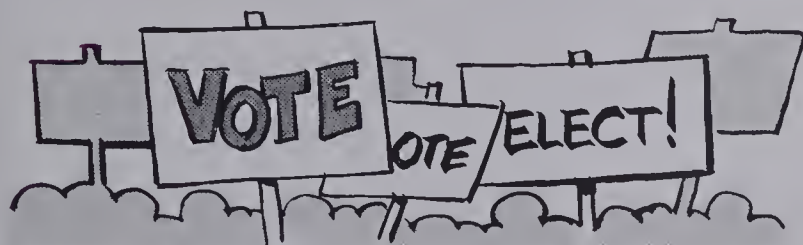


# Reading Pictographs




































1. How many litres of strawberries did Cheryl pick each day?
2. Find the average number of litres Cheryl picked each day.
3. Cheryl picked 105 L on Saturday. How would this be shown?






















4. Who won the election?
5. How many votes were counted altogether?
6. How would you show 900 votes? 1000 votes? 950 votes?






















7. Which village has the greatest population? the smallest?
8. What is the population of each village?
9. How would you show 2000 people?

Litres of Strawberries	
Day	Strawberries Cheryl Picked
Monday	    
Tuesday	   
Wednesday	       
Thursday	        
Friday	        

 represents 10 L.

Community Election	
Candidate	Number of Votes
Ms. Lizabeth	  
Mr. Joseph	 
Ms. Francis	    
Mr. Bobbit	    
Ms. Jill	  

 represents 100 votes.

Populations of 4 Villages	
Village	Population
Oil Springs	
Southampton	  
Port Dover	     
Wawa	        

 represents 500 people.

UNIVERSITY OF CALIFORNIA

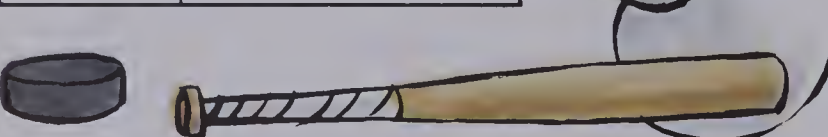
- # University of Illinois

4B	40
4C	60
4D	80
4E	50

☼ represents 10 laps.

- 

Class	Points Earned
4A	60
4B	70
4C	35
4D	90
4E	55



- Draw the pictograph.

- (a) Choose a picture symbol.
- (b) Decide how many points each symbol will represent.
- (c) Decide how many symbols are needed for each class.
- (d) Draw the graph and symbols.
- (e) Label and title your graph.

208 Drawing pictographs

# Post Office Worker

1. Copy and complete the 50 times chart.



$50 \times 1 = 50$	$50 \times 6 = \blacksquare$
$50 \times 2 = \blacksquare$	$50 \times 7 = \blacksquare$
$50 \times 3 = 150$	$50 \times 8 = \blacksquare$
$50 \times 4 = \blacksquare$	$50 \times 9 = \blacksquare$
$50 \times 5 = \blacksquare$	$50 \times 10 = \blacksquare$



Draw pictographs. Use one symbol to represent 50 items.

2.

Letter Deliveries	
Carrier	Houses Visited
Mr. Dean	200
Ms. Craig	350
Mr. Waters	550
Mrs. Baird	100
Mrs. Tracy	450

3.

Parcel Deliveries	
Name	Number
Mr. O'Hare	250
Mrs. Gratski	500
Mr. Brodova	150
Ms. Hoff	550
Mr. Youngman	400

Use one symbol to represent 100 items in these graphs.

4.

Letters Delivered	
Day	Number
Monday	800
Tuesday	900
Wednesday	300
Thursday	700
Friday	550

5.

Stamps Sold	
Kind	Number
10¢	700
12¢	1500
25¢	500
50¢	400
\$1.00	100



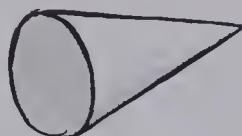
# Chapter Test

1. Name each shape.

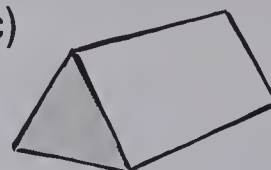
(a)



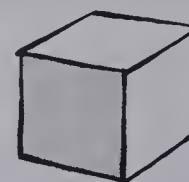
(b)



(c)



(d)

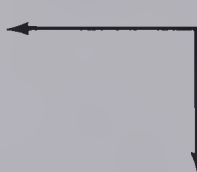


2. Which of these are right angles?

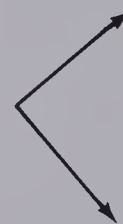
(a)



(b)



(c)

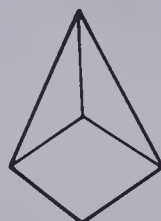


(d)

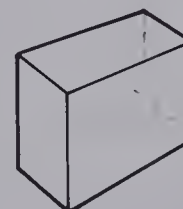


3. Record the number of edges, faces, and vertices in each solid.

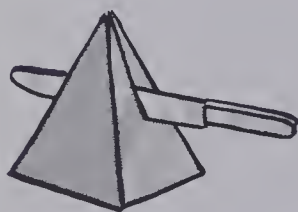
Pyramid



Prism



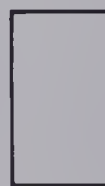
4. Choose the face the cut will produce.



(a)



(b)






















(c)



(d)



5. Harry sells papers.

Day	Number of Papers Sold
Saturday	   
Sunday	     
Tuesday	 
Thursday	      

(a) On which day did Harry sell the most papers? the fewest?

(b) How many papers did he sell on Saturday?

(c) How many papers did he sell on Tuesday?

 represents 10 papers.

# Cumulative Review

Topic	Number of Books
Travel	50
Mysteries	250
Adventure	450
Sports	325
Science Fiction	75

1. Robbie checked the kinds of books in the library.

Use Robbie's table to draw a pictograph.

Use one symbol to represent 50 books.

2. Rewrite using our numerals.

(a) XXIX      (b) XC      (c) LXXXII

3. Add.

$$\begin{array}{r} (a) \quad 625 \\ + \quad 74 \\ \hline \end{array}$$

$$\begin{array}{r} (b) \quad \$80.14 \\ + \quad 39.96 \\ \hline \end{array}$$

4. Subtract.

$$\begin{array}{r} (a) \quad 652 \\ - \quad 418 \\ \hline \end{array}$$

$$\begin{array}{r} (b) \quad \$84.80 \\ - \quad 38.92 \\ \hline \end{array}$$

5. Give the meaning of the coloured digit.

(a) 731      (b) 5432      (c) 456

6. Use  $>$ ,  $<$ , or  $=$ .

(a) 3751 ● 3732      (b) 4653 ● 4468      (c) 56.4 ● 564

7. Multiply.

(a)  $4 \times 32$       (b)  $7 \times 46$       (c)  $6 \times 321$       (d)  $8 \times 641$

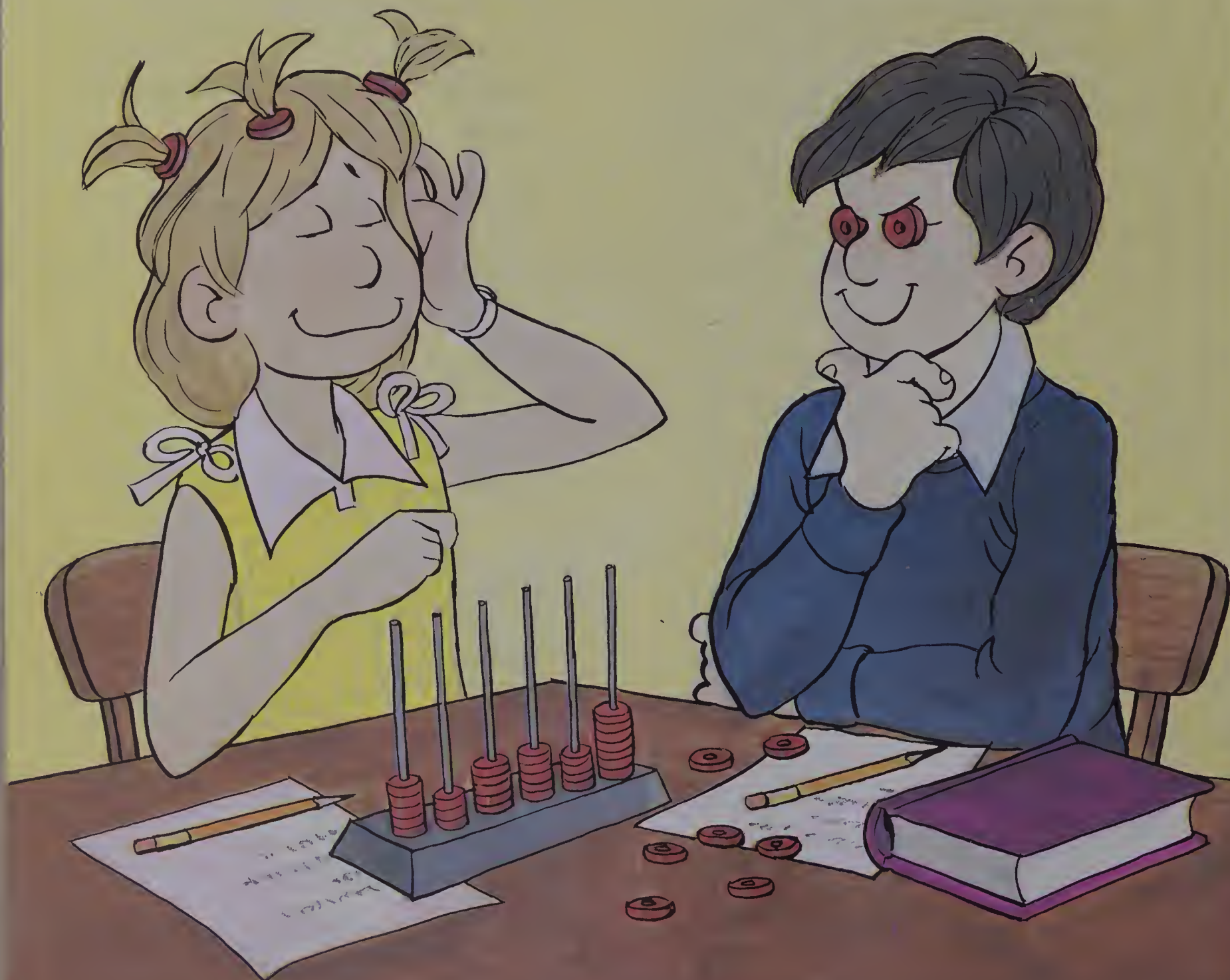
8. Divide.

(a)  $54 \div 9$       (b)  $128 \div 4$       (c)  $5 \overline{)365}$       (d)  $9 \overline{)873}$

# Chapter 8

# Addition and Subtraction

Place Value to Hundredths  
Fractions and Decimals





# Tune Up

1. (a)	$\begin{array}{r} 27 \\ + 48 \\ \hline \end{array}$	(b)	$\begin{array}{r} 35 \\ + 36 \\ \hline \end{array}$	(c)	$\begin{array}{r} 80 \\ + 65 \\ \hline \end{array}$	(d)	$\begin{array}{r} 47 \\ + 59 \\ \hline \end{array}$	(e)	$\begin{array}{r} 248 \\ + 506 \\ \hline \end{array}$
--------	---	-----	---	-----	---	-----	---	-----	---

2. (a)	$\begin{array}{r} 320 \\ + 858 \\ \hline \end{array}$	(b)	$\begin{array}{r} 685 \\ + 337 \\ \hline \end{array}$	(c)	$\begin{array}{r} 6520 \\ + 2807 \\ \hline \end{array}$	(d)	$\begin{array}{r} 5634 \\ + 2706 \\ \hline \end{array}$	(e)	$\begin{array}{r} 7068 \\ + 4375 \\ \hline \end{array}$
--------	---	-----	---	-----	---	-----	---	-----	---

3. (a)	$\begin{array}{r} 2.3 \\ + 0.2 \\ \hline \end{array}$	(b)	$\begin{array}{r} 6.4 \\ + 2.8 \\ \hline \end{array}$	(c)	$\begin{array}{r} 7.3 \\ + 8.8 \\ \hline \end{array}$	(d)	$\begin{array}{r} 24.7 \\ + 19.5 \\ \hline \end{array}$	(e)	$\begin{array}{r} \$25.68 \\ + 14.19 \\ \hline \end{array}$
--------	---	-----	---	-----	---	-----	---	-----	---

4. (a)	$\begin{array}{r} 80 \\ - 37 \\ \hline \end{array}$	(b)	$\begin{array}{r} 72 \\ - 46 \\ \hline \end{array}$	(c)	$\begin{array}{r} 65 \\ - 38 \\ \hline \end{array}$	(d)	$\begin{array}{r} 103 \\ - 37 \\ \hline \end{array}$	(e)	$\begin{array}{r} 125 \\ - 66 \\ \hline \end{array}$
--------	---	-----	---	-----	---	-----	--	-----	--

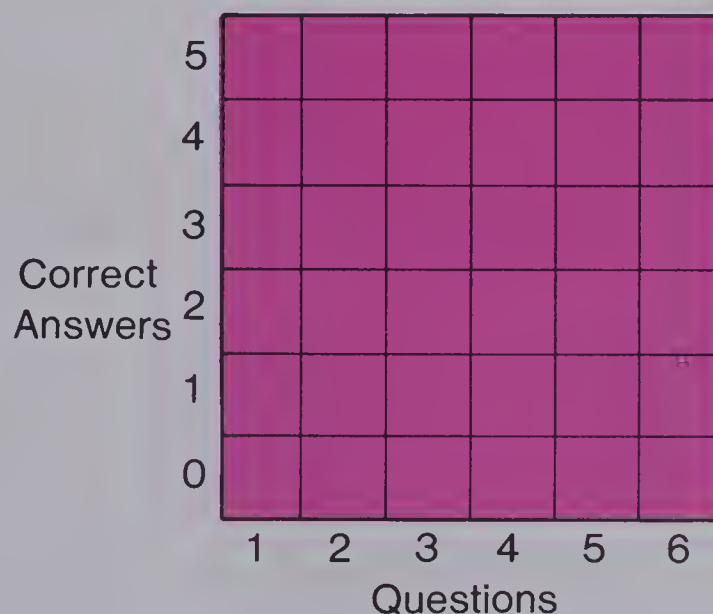
5. (a)	$\begin{array}{r} 463 \\ - 208 \\ \hline \end{array}$	(b)	$\begin{array}{r} 650 \\ - 376 \\ \hline \end{array}$	(c)	$\begin{array}{r} 504 \\ - 236 \\ \hline \end{array}$	(d)	$\begin{array}{r} 1874 \\ - 965 \\ \hline \end{array}$	(e)	$\begin{array}{r} 4309 \\ - 1418 \\ \hline \end{array}$
--------	---	-----	---	-----	---	-----	--	-----	---

6. (a)	$\begin{array}{r} 8.2 \\ - 0.7 \\ \hline \end{array}$	(b)	$\begin{array}{r} 7.0 \\ - 3.6 \\ \hline \end{array}$
--------	---	-----	---

(c)	$\begin{array}{r} \$37.00 \\ - 28.80 \\ \hline \end{array}$	(d)	$\begin{array}{r} \$41.20 \\ - 20.70 \\ \hline \end{array}$
-----	---	-----	---

(e)  $\$92.54 - \$37.06 = \blacksquare$

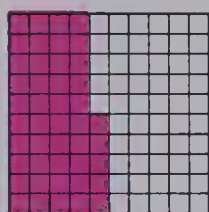
Copy the chart. Graph your results.



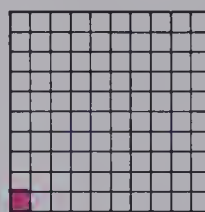
# Hundredths



$$\frac{3}{10}$$

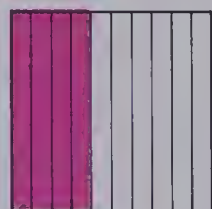


$$\frac{45}{100}$$



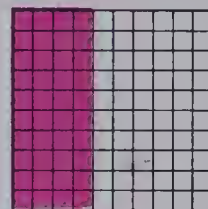
$$\frac{1}{100}$$

← number of parts shaded  
← number of parts in all



$$\frac{4}{10}$$

=



$$\frac{40}{100}$$

=

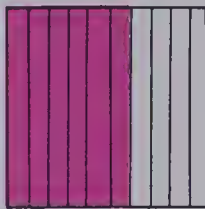
## Exercises

Write the fraction for the shaded part.

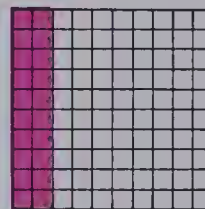
1.



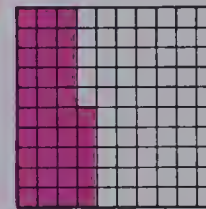
2.



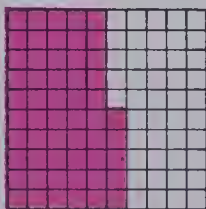
3.



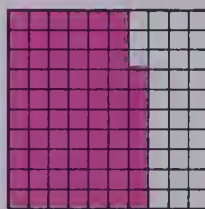
4.



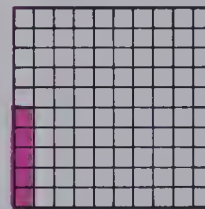
5.



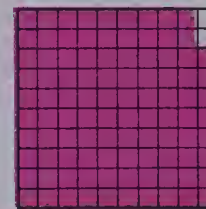
6.



7.

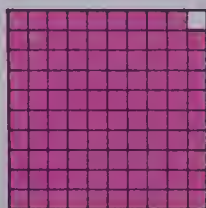


8.

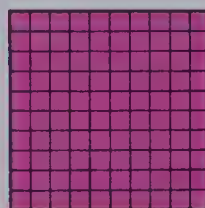


How many hundredths are shaded? Write as a fraction.

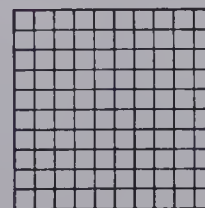
9.



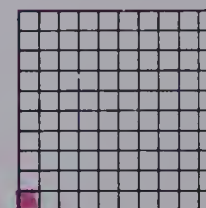
10.



11.



12.

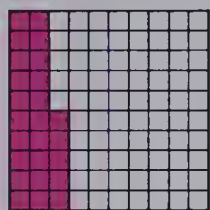


13. Write 1 as hundredths.  $1 = \frac{\blacksquare}{100}$

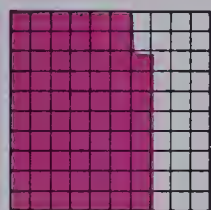
14. Write 0 as hundredths.  $0 = \frac{\blacksquare}{100}$

# Hundredths as Decimals

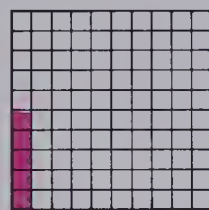
We can write hundredths as decimals.



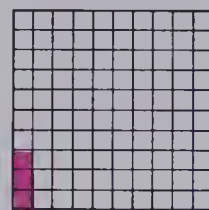
$$\frac{25}{100} = 0.25$$



$$\frac{68}{100} = 0.68$$



$$\frac{5}{100} = 0.05$$



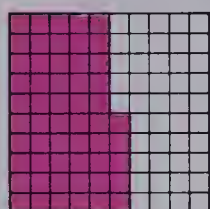
$$\frac{3}{100} = 0.03$$

Be careful of these!

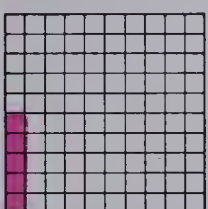
## Exercises

Write the decimal for each.

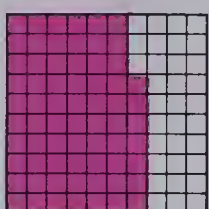
1.



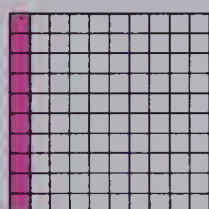
2.



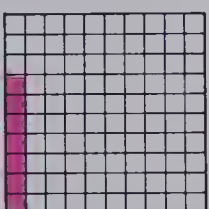
3.



4.



5.



6. Write the decimal for each name. Remember the zero in front of the decimal.

(a) thirty hundredths

(b) six hundredths

(c) seventy-four hundredths

7. Write the decimal for each.

(a)  $\frac{38}{100}$

(b)  $\frac{27}{100}$

(c)  $\frac{6}{100}$

(d)  $\frac{90}{100}$

(e)  $\frac{9}{10}$

(f)  $\frac{47}{100}$

(g)  $\frac{11}{100}$

(h)  $\frac{7}{10}$

(i)  $\frac{71}{100}$

(j)  $\frac{17}{100}$

8. Write each as a fraction.

(a) 0.50

(b) 0.65

(c) 0.75

(d) 0.07

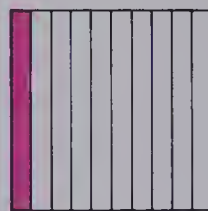
(e) 0.04



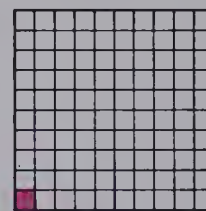
# Place Value



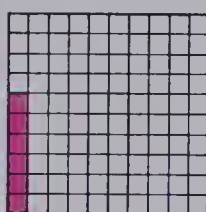
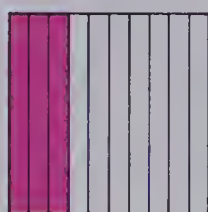
ones	tenths	hundredths
1		



ones	tenths	hundredths
	1	



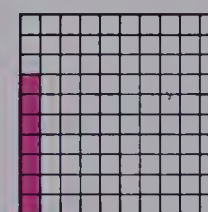
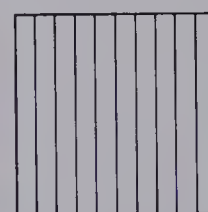
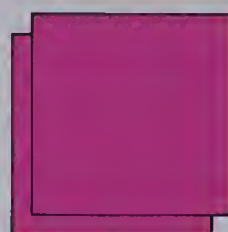
ones	tenths	hundredths
		1



ones	tenths	hundredths
1	3	6

1.36

one and thirty-six hundredths



ones	tenths	hundredths
2	0	7

2.07

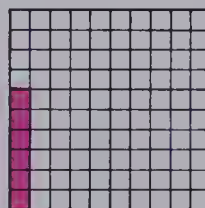
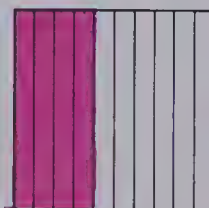
two and seven hundredths

## Exercises

Copy and complete each place-value chart.

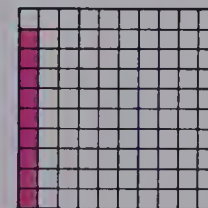
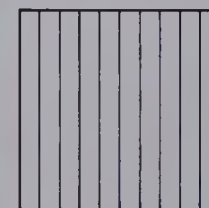
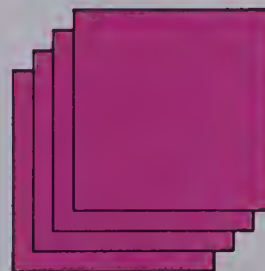
Write the decimal for each.

1.



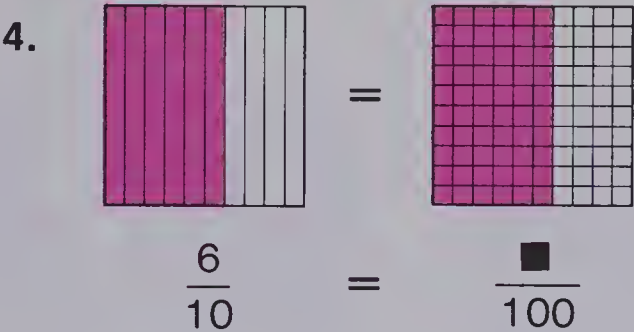
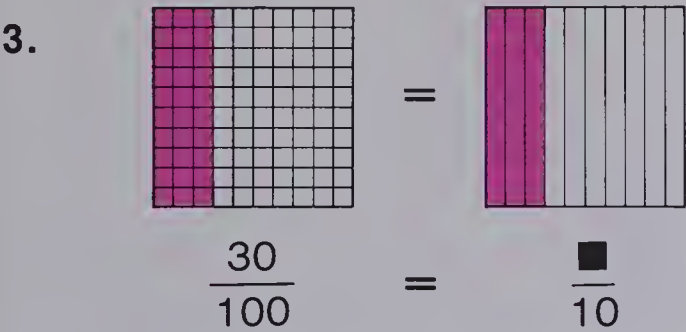
ones	tenths	hundredths

2.

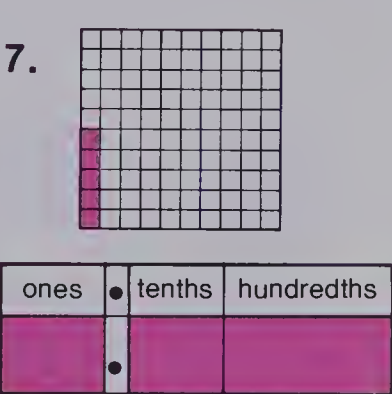
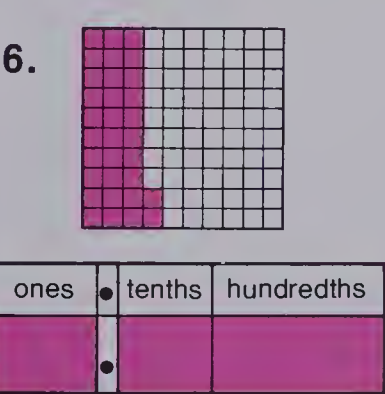
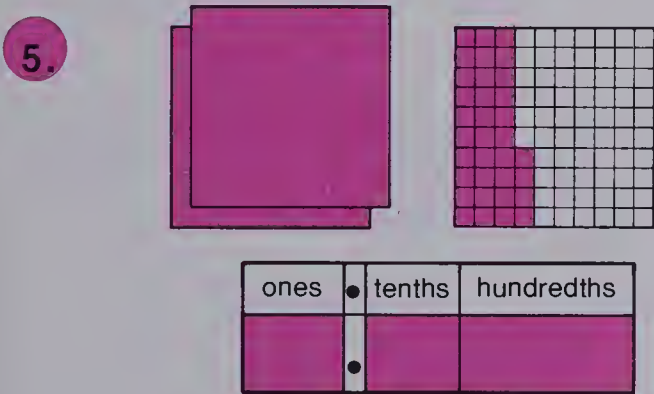


ones	tenths	hundredths

Use the pictures to help you complete the statements.

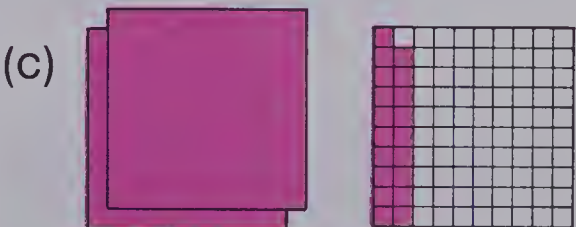


Copy and complete each place-value chart.  
Write the decimal for each.

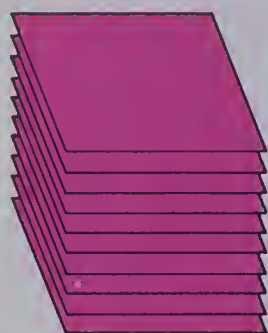


8. (a) What does the 3 mean in 0.3? (b) What does the 5 mean in 0.05?  
(c) What does the 7 mean in 7.12? (d) What does the 2 mean in 1.28?

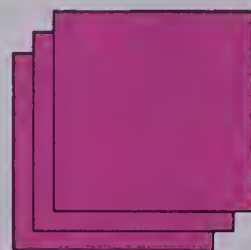
9. Write the decimal for each.



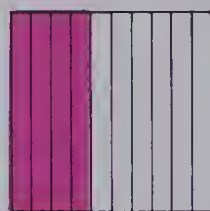
# Meaning of Numbers



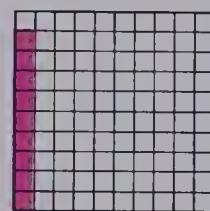
10



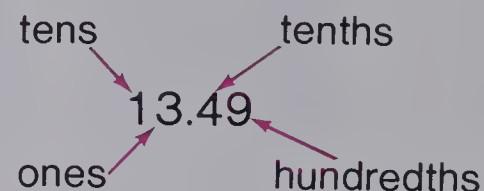
3



$\frac{4}{10}$



$\frac{9}{100}$

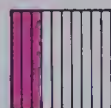
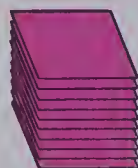


thirteen and forty-nine hundredths

## Exercises

Give the value of each.

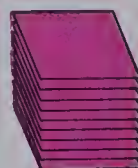
1.



■ ■ . ■ ■

■ and ■ hundredths

2.



■ ■ . ■ ■

■ and ■ hundredths

3. In the number 21.53,  
what does the 2 mean?  
what does the 1 mean?  
what does the 5 mean?  
what does the 3 mean?

4. In the number 56.07,  
how many in the ten's position?  
the one's position?  
the tenth's position?  
the hundredth's position?

Draw a place-value chart and complete it for each number.

tens	ones	•	tenths	hundredths
		•		

5. 45.67

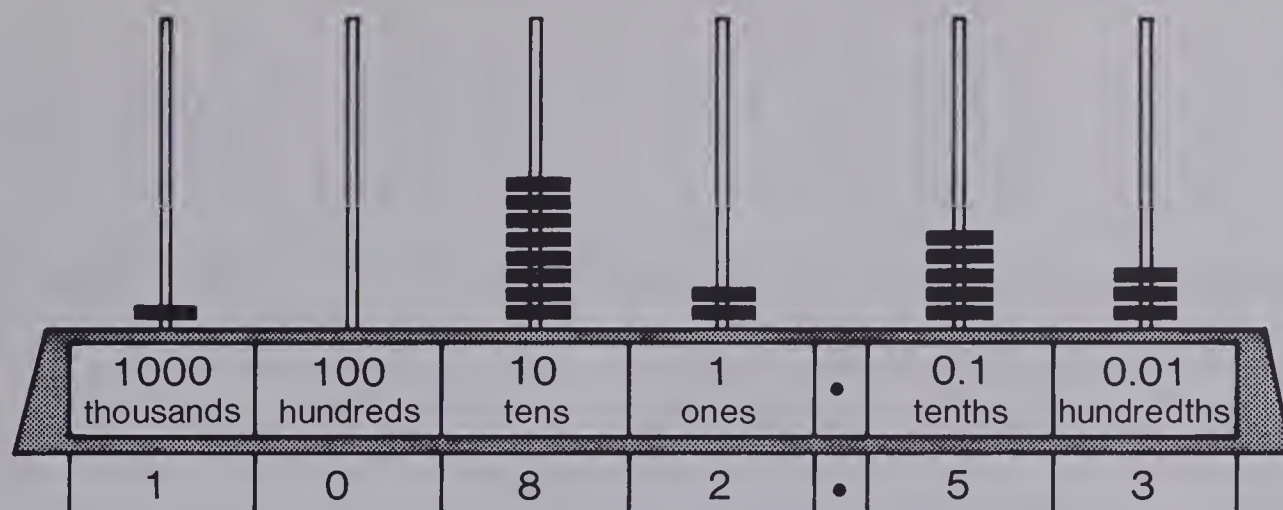
6. 72.03

7. 50.47

8. 98.01



# Place Value



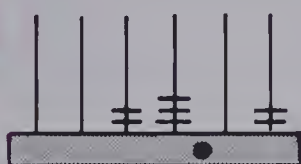
The abacus can be used to show numbers.

one thousand, eighty-two and fifty-three hundredths

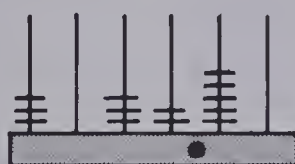
## Exercises

What numbers are represented?

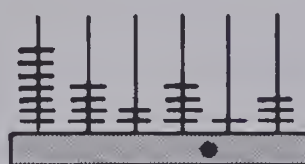
1.



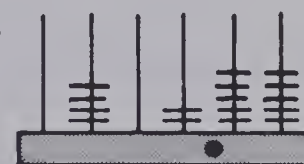
2.



3.



4.



Draw an abacus to show each number.

5. 324.21

6. 2058.4

7. 402.03

8. 6521.32

9. In 2304.56,

(a) What does the "2" mean?

(c) What does the "0" mean?

(e) What does the "5" mean?

(b) What does the "3" mean?

(d) What does the "4" mean?

(f) What does the "6" mean?

10. Write each numeral.

(a) nine thousand, fifty-one and six hundredths

(b) two thousand, nine and fifty-two hundredths

(c) eight thousand, two hundred and five tenths

# Adding Hundredths

Add.

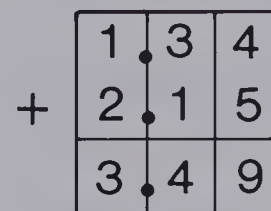
$$\begin{array}{r} 1.34 \\ + 2.15 \\ \hline \end{array}$$

.9 Add hundredths.



$$\begin{array}{r} 1.34 \\ + 2.15 \\ \hline \end{array}$$

.49 Add tenths.



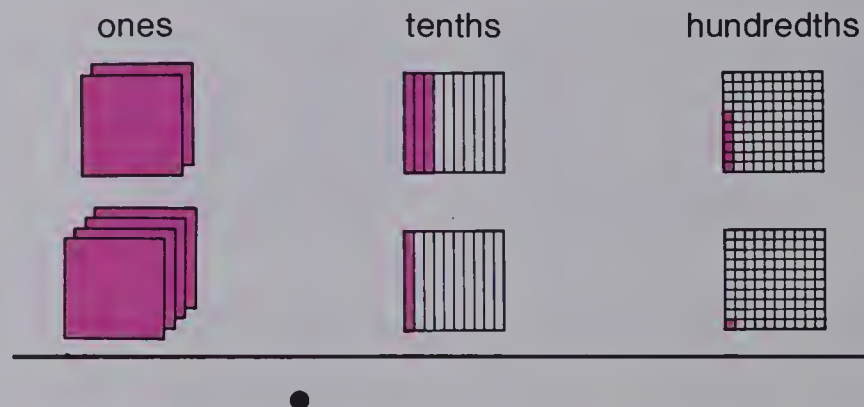
$$\begin{array}{r} 1.34 \\ + 2.15 \\ \hline \end{array}$$

3.49 Add ones.

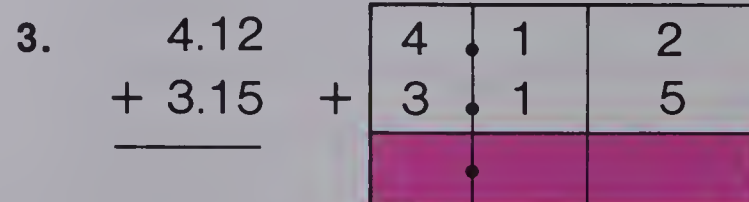
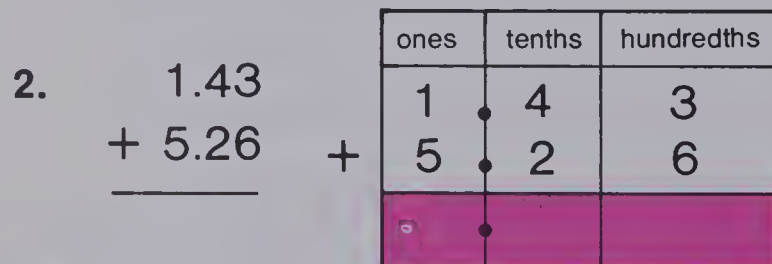
## Exercises

Add. Use the blocks to help.

$$\begin{array}{r} 1. \quad 2.36 \\ + 4.11 \\ \hline \end{array}$$



Add. Use the place-value chart.



$$\begin{array}{r} 4. \quad 6.12 \\ + 1.87 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 7.23 \\ + 2.71 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8.41 \\ + 1.38 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 53.23 \\ + 21.45 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 28.76 \\ + 31.23 \\ \hline \end{array}$$

# Adding Decimals

1 large pumpkin: 11.68 kg

1 large turnip: 3.14 kg

How many kilograms altogether?

The two are 14.82 kg.

$$\begin{array}{r} 11.68 \\ + 3.14 \\ \hline 14.82 \end{array}$$

1	1	<sup>1</sup> 6	8
	3	1	4
1	4	8	2

12 hundredths  
is 1 tenth and  
2 hundredths.



## Exercises

Add. Use the place-value chart.

1. 
$$\begin{array}{r} 3.26 \\ + 4.18 \\ \hline \end{array}$$

3	2	6
4	1	8

2. 
$$\begin{array}{r} 4.67 \\ + 2.65 \\ \hline \end{array}$$

4	6	7
2	6	5

3. 
$$\begin{array}{r} 2.31 \\ + 7.24 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 3.41 \\ + 2.18 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 5.16 \\ + 1.73 \\ \hline \end{array}$$

6. 
$$\begin{array}{r} 6.23 \\ + 1.45 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 5.36 \\ + 4.48 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 16.74 \\ + 1.63 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 11.49 \\ + 4.89 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 14.67 \\ + 11.78 \\ \hline \end{array}$$

11. 
$$\begin{array}{r} 213.23 \\ + 22.98 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 332.94 \\ + 413.98 \\ \hline \end{array}$$

13. A salmon derby.

Fred's salmon: 21.31 kg

Ron's salmon: 19.45 kg

How much altogether?

14. Machinist at work.

Length of first steel pipe: 3.52 m

Length of second steel pipe: 2.88 m

How much altogether?



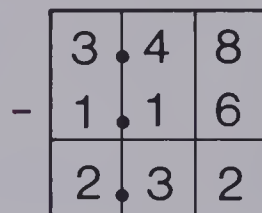
# Subtracting Hundredths

Subtract.

$$\begin{array}{r} 3.48 \\ - 1.16 \\ \hline 2 \end{array}$$



$$\begin{array}{r} 3.48 \\ - 1.16 \\ \hline .32 \end{array}$$

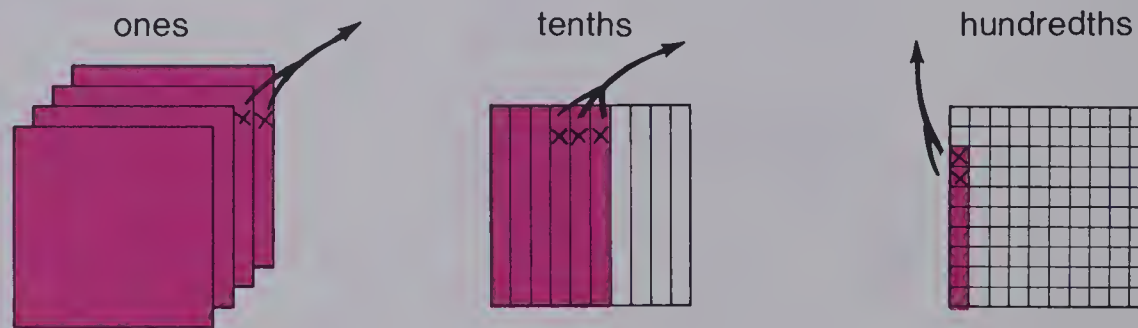


$$\begin{array}{r} 3.48 \\ - 1.16 \\ \hline 2.32 \end{array}$$

## Exercises

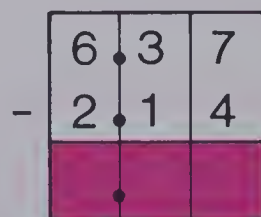
Subtract. Use the blocks to help you.

$$\begin{array}{r} 1. \quad 4.68 \\ - 2.32 \\ \hline \end{array}$$

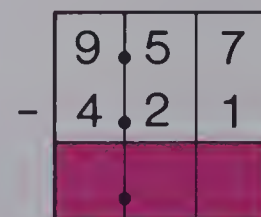


Subtract. Use the place-value chart.

$$\begin{array}{r} 2. \quad 6.37 \\ - 2.14 \\ \hline \end{array}$$



$$\begin{array}{r} 3. \quad 9.57 \\ - 4.21 \\ \hline \end{array}$$



$$\begin{array}{r} 4. \quad 6.43 \\ - 2.11 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 5.48 \\ - 2.18 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 6.68 \\ - 1.48 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 39.84 \\ - 15.44 \\ \hline \end{array}$$

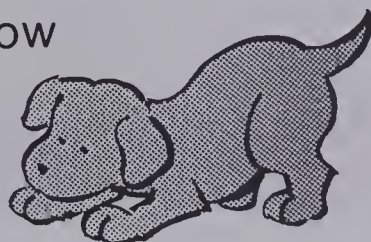
$$\begin{array}{r} 8. \quad 49.93 \\ - 14.62 \\ \hline \end{array}$$

# Subtracting Decimals

Tom's puppy: 3.18 kg

One year later: 14.62 kg

How much did it grow  
in one year?



Subtract.

$$\begin{array}{r} 14.\overset{5}{\cancel{6}}\overset{12}{\cancel{2}} \\ - 3.18 \\ \hline 11.44 \end{array}$$

1	4	<sup>5</sup> <del>6</del>	<sup>12</sup> <del>2</del>
	3	1	8
1	1	4	4

Regroup 1 tenth.

We have

12 hundredths now.

The puppy gained 11.44 kg.

## Exercises

Subtract. Use the place-value chart.

$$\begin{array}{r} 1. \quad 5.63 \\ - 2.17 \\ \hline \end{array}$$

5	6	3
2	1	7

$$\begin{array}{r} 2. \quad 16.21 \\ - 3.19 \\ \hline \end{array}$$

1	6	2	1
	3	1	9

$$\begin{array}{r} 3. \quad 6.34 \\ - 2.19 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 8.54 \\ - 3.18 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 6.08 \\ - 1.82 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 9.74 \\ - 1.98 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 8.05 \\ - 3.98 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 73.08 \\ - 8.91 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 24.31 \\ - 13.18 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 13.11 \\ - 1.18 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 414.02 \\ - 21.18 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 342.11 \\ - 152.28 \\ \hline \end{array}$$

13. Salmon Derby.

Rhoda's salmon: 21.31 kg

Debbie's salmon: 19.45 kg

What is the difference in kilograms?

14. Machinist at work.

Length of steel: 2.88 m

Length needed: 3.52 m

How much more is needed?

# Practice

Add.

$$\begin{array}{r} \phantom{0}^1 \phantom{0}^1 \phantom{0}^1 \\ 49.65 \\ + 13.49 \\ \hline 63.14 \end{array}$$

Subtract.

$$\begin{array}{r} \phantom{0}^5 \phantom{0}^{16} \phantom{0}^{17} \phantom{0}^{14} \\ \cancel{67}.84 \\ - 49.98 \\ \hline 17.86 \end{array}$$

Adding and subtracting decimals is like adding and subtracting whole numbers.

## Exercises

Add. Line up the decimals.

1. 
$$\begin{array}{r} 45.67 \\ + 56.21 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 6.07 \\ + 11.25 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 40.28 \\ + 45.61 \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 45.67 \\ + 1.58 \\ \hline \end{array}$$

5. 
$$\begin{array}{r} 19.23 \\ + 91.87 \\ \hline \end{array}$$

Subtract. Line up the decimals.

6. 
$$\begin{array}{r} 35.89 \\ - 14.26 \\ \hline \end{array}$$

7. 
$$\begin{array}{r} 24.75 \\ - 21.63 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 94.47 \\ - 31.46 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 92.86 \\ - 8.79 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 99.56 \\ - 95.83 \\ \hline \end{array}$$

Add or subtract.

11. 
$$\begin{array}{r} 132.93 \\ + 64.21 \\ \hline \end{array}$$

12. 
$$\begin{array}{r} 2345.67 \\ + 41.08 \\ \hline \end{array}$$

13. 
$$\begin{array}{r} 8.09 \\ + 1141.83 \\ \hline \end{array}$$

14. 
$$\begin{array}{r} 1785.09 \\ - 96.94 \\ \hline \end{array}$$

15. 
$$\begin{array}{r} 1876.00 \\ - 78.92 \\ \hline \end{array}$$

16. The mass of a farm truck is 1345.5 kg.  
The mass of the wheat in the truck is 814.6 kg.  
What is the total mass?

17. The mass of the truck and wheat is 2946.7 kg.  
The mass of the truck is 1564.9 kg.  
What is the mass of the wheat?



# Let's Compare

$$\$124.08 \bullet \$124.53$$

1 hundred	2 tens	4 ones	and	no dimes	8 pennies
↙ same ↘	↙ same ↘	↙ same ↘		↙ less ↘	
1 hundred	2 tens	4 ones	and	5 dimes	3 pennies

$$\$124.08 < \$124.53$$

## Exercises

Compare. Use  $>$ ,  $<$ , or  $=$ .

1.  $\$26.37$  and  $\$26.34$

2	6	.	3	7
↑	↑		↑	↑
↓	↓		↓	↓
2	6	.	3	4

$$\$26.37 \bullet \$26.34$$

2.  $\$3529.75$  and  $\$3541.05$

3	5	2	9	.	7	5
↑	↑	↑				
↓	↓	↓				
3	5	4	1	.	0	5

$$\$3529.75 \bullet \$3541.05$$

3.  $\$0.54 \bullet \$0.25$

4.  $\$0.86 \bullet \$0.94$

5.  $\$0.44 \bullet \$0.44$

6.  $\$3.29 \bullet \$3.49$

7.  $\$4.41 \bullet \$4.46$

8.  $\$23.14 \bullet \$22.06$

9.  $24.50 \bullet 24.30$

10.  $19.25 \bullet 18.50$

11.  $38.60 \bullet 58.60$

12. Long Jump.

Michael: 3.62 m

Patrick: 3.47 m

Who jumped farther?

13. Portable Radios.

The "Phonic": \$48.59

The "Delta": \$48.90

Which costs more?

14. Racing Times.

Kathleen: 87.2 s

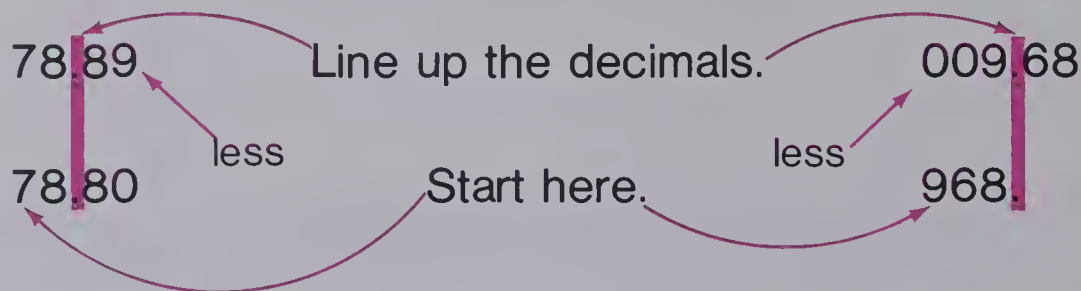
Sandy: 85.9 s

Who has shorter time?

# More Comparing

$$78.89 \bullet 78.8$$

$$9.68 \bullet 968$$



$$78.89 > 78.8$$

$$9.68 < 968$$

## Exercises

Compare. Use  $>$ ,  $=$ , or  $<$ .

1.  $2.61 \bullet 26.1$

2.  $34.6 \bullet 3.46$

3.  $34.44 \bullet 34.44$

4.  $561 \bullet 56.1$

5.  $72.1 \bullet 721$

6.  $8.4 \bullet 84$

7.  $2.2 \bullet 2.28$

8.  $31.88 \bullet 31.8$

9.  $78.3 \bullet 78.33$

10.  $185.5 \bullet 185.5$

11.  $6.28 \bullet 62.8$

12.  $0.8 \bullet 0.81$

13.  $1.8 \bullet 2.1$

14.  $6352.25 \bullet 6352.15$

15.  $24.5 \bullet 54.2$

16.  $627.3 \bullet 62.73$

17.  $7.3 \bullet 7.38$

18.  $146.75 \bullet 146.75$

19.  $3458.7 \bullet 34\ 587$

20.  $9000.7 \bullet 10\ 000$

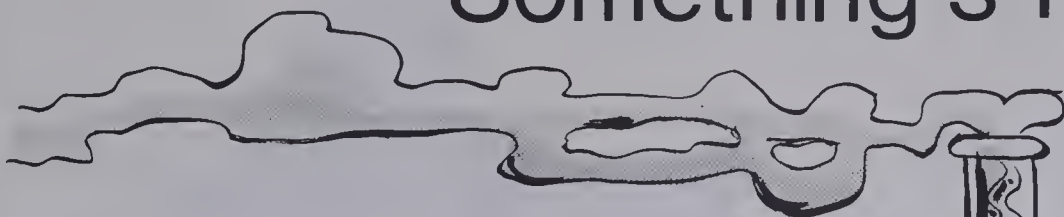
21.  $111.1 \bullet 11.11$

## BRAINTICKLER

A yellow cat before two yellow cats.  
 A yellow cat between two yellow cats.  
 A yellow cat behind two yellow cats.  
 How many yellow cats?



# Something's Missing



Dr. Morrow is making some secret formula.

She made 5 L on Monday.

She made some more on Tuesday.

Now she has 12 L altogether.

How many litres were made on Tuesday?

Think:

5

$5 + \blacksquare$

$5 + \blacksquare = 12$

Find the missing addend by subtracting.

$$\begin{array}{r} 12 \\ - 5 \\ \hline 7 \end{array}$$

$$5 + 7 = 12$$

$\blacksquare$  L were made on Tuesday.

## Exercises

Subtract to find the missing addends.

1.  $8 + \blacksquare = 21$

$$\begin{array}{r} 21 \\ - 8 \\ \hline \blacksquare \end{array}$$

2.  $\blacksquare + 14 = 22$

$$\begin{array}{r} 22 \\ - 14 \\ \hline \blacksquare \end{array}$$

3.  $4.6 + \blacksquare = 9.3$

$$\begin{array}{r} 9.3 \\ - 4.6 \\ \hline \blacksquare \end{array}$$

Find the missing addends.

4.  $23 + \blacksquare = 52$

5.  $\$4.95 + \blacksquare = \$15.50$

6.  $\blacksquare + 14.2 = 19.5$

7.  $127 + \blacksquare = 326$

8.  $\blacksquare + 16.35 = 28.85$

9.  $\blacksquare + 4.3 = 21.8$

10.  $1240 + \blacksquare = 4357$

11.  $0.81 + \blacksquare = 2.16$

12.  $\blacksquare + 26 = 73$

13.  $\blacksquare + 0.5 = 3.2$

14.  $\blacksquare + 5.35 = 16.20$

15.  $0.41 + \blacksquare = 1.06$

16.  $6.31 + \blacksquare = 9.12$

17.  $\blacksquare + 3.24 = 13.52$

18.  $\blacksquare + 42.74 = 134.23$



# World Records

The fastest moth can fly 55.5 km/h.  
The fastest butterfly can fly 27.7 km/h.

How much faster is the moth than the butterfly?

*Step 1* Answer Professor Q's four questions.

*Step 2* Write a number sentence.

*Step 3* Make the sentence true.

The moth can fly 27.8 km/h faster than the butterfly.



$$55.5 - 27.7 = \blacksquare$$

$$55.5 - 27.7 = 27.8$$

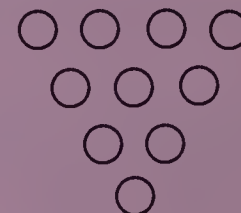


## Exercises

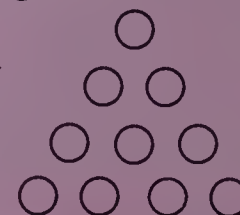
1. A centipede was found that had 354 legs.  
A millipede was found that had 710 legs.  
How many legs were there altogether?
2. The largest spider is 25.40 cm wide.  
The smallest spider is 0.05 cm wide.  
What is the difference in their widths?
3. The largest ant measures 3.32 cm in length.  
The smallest ant measures 0.45 cm in length.  
What is the difference in their lengths?
4. The largest moth has a wingspan of 26.6 cm.  
The largest butterfly has a wingspan of 30.4 cm.  
What is the total of their wingspans?



## BRAINTICKLER



Arrange ten coins as shown.  
Move just *three* to get  
this arrangement.



# Who Has a Match?

Michael writes a number sentence.

$$13 + 19 = \blacksquare$$



Kathleen writes a matching story.

There are 13 boys and 19 girls in our class.

How many students are there altogether in our class?

## Exercises

### Number Sentence

1.  $24 - 5 = \blacksquare$
2.  $85.3 \text{ cm} - 6.84 \text{ cm} = \blacksquare$
3.  $\$2.95 + \$3.49 = \blacksquare$
4.  $4246 + \blacksquare = 6573$
5.  $\$153.99 - \$124.59 = \blacksquare$
6.  $43.6 \text{ L} + 37.8 \text{ L} = \blacksquare$
7.  $137 \text{ km} + \blacksquare = 245 \text{ km}$
8.  $92 \text{ kg} - 75 \text{ kg} = \blacksquare$
9.  $328 - 165 = \blacksquare$
10.  $4.3 \text{ h} + 3.9 \text{ h} = \blacksquare$
11. Make each number sentence true. Write answers for your stories.

Write a matching story about:

doughnuts

body heights

birthday presents

hockey fans

new bicycles

gas for Mrs. Finley's car

travelling by car

body mass

municipal parking lot

weekend chores

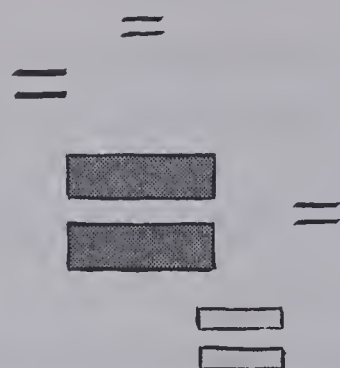
# Inequations

## Equations

$$4 + 3 = 7$$

$$15.5 = 9 + 6.5$$

$$16 - 4 = 12$$

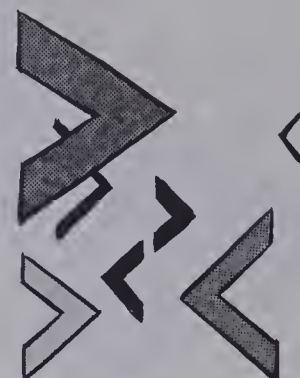


## Inequations

$$11.5 > 2 + 3.4$$

$$3 < 5$$

$$14 - 6 < 15 + 2$$



## Exercises

Which are equations? Which are inequations?

1.  $5 + 9 = 14$

2.  $7 - 2 > 3$

3.  $13.2 < 18$

4.  $6 + 3 = 2 + 7$

5.  $14 - 6 = 8$

6.  $12 > 5.2$

7.  $3 + 8 < 5 + 9$

8.  $15 = 7 + 8$

Make true number sentences. Use  $>$ ,  $=$ , or  $<$ .

9.  $4 + 6 \bullet 13$

10.  $18 - 12 \bullet 3 + 4$

11.  $4.5 + 6 \bullet 10.5$

12.  $17 - 8 \bullet 7 + 5$

13.  $47 + 12 \bullet 52 - 7$

14.  $6.7 \bullet 5.9$

15.  $38 + 41 \bullet 88$

16.  $16 \bullet 7 + 6$

17.  $7.2 - 2.2 \bullet 5$

18.  $4.3 + 6.2 \bullet 15.5$

19.  $26 - 14 \bullet 9$

20.  $46 + 17 \bullet 63$

21.  $1.3 + 4.2 \bullet 5.2$

22.  $16 \bullet 24 - 8$

23.  $7.5 + 8.3 \bullet 14$

24.  $87 + 63 \bullet 113$

25.  $\$1.29 + \$8.90 \bullet \$10.19$

26.  $52 \bullet 87 - 44$

27.  $\$42.00 \bullet \$35.00 + \$19.00$

28.  $135 - 26 \bullet 190 - 51$

29.  $\$53.00 + \$18.00 \bullet \$61.00$

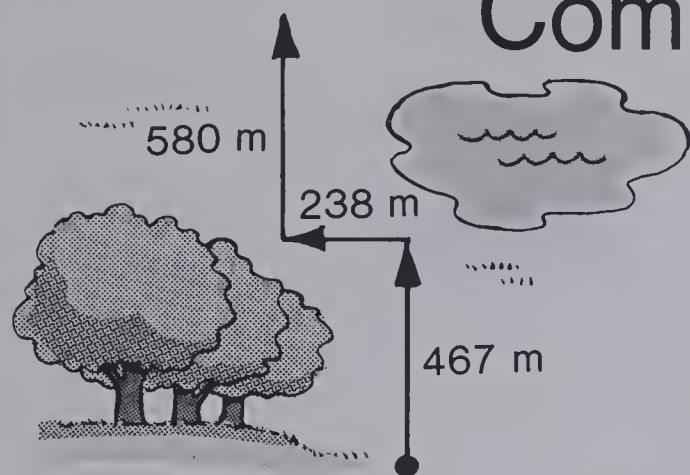
30.  $33 + 12 \bullet 25 + 18$

31.  $\$27.99 \bullet \$14.50 + \$14.50$

32.  $110 + 60 \bullet 170$



# Compass Courses



Bob made a compass course.  
467 m *north*,  
then 238 m *west*,  
then 580 m *north*.  
How many metres altogether?

(a) Add ones.

$$\begin{array}{r} 1 \\ 467 \\ 238 \\ + 580 \\ \hline 5 \end{array}$$

(b) Add tens.

$$\begin{array}{r} 11 \\ 467 \\ 238 \\ + 580 \\ \hline 85 \end{array}$$

(c) Add hundreds.

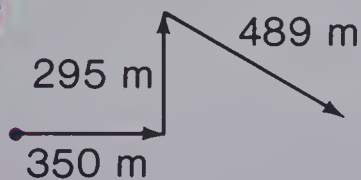
$$\begin{array}{r} 11 \\ 467 \\ 238 \\ + 580 \\ \hline 1285 \end{array}$$

There are 1285 m altogether.

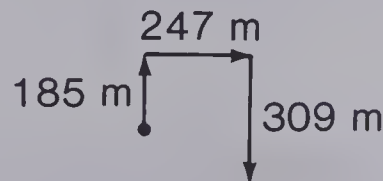
## Exercises

Find how many metres there are altogether in these courses.

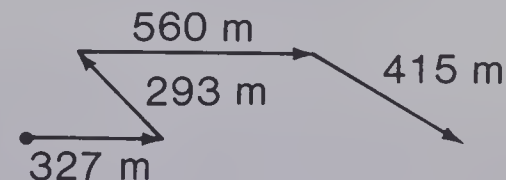
1.



2.



3.



Add these course distances.

4.

$$\begin{array}{r} 627 \\ 158 \\ + 292 \\ \hline \end{array}$$

5.

$$\begin{array}{r} 248 \\ 362 \\ + 501 \\ \hline \end{array}$$

6.

$$\begin{array}{r} 7405 \\ 2317 \\ 6480 \\ + 2161 \\ \hline \end{array}$$

7.

$$\begin{array}{r} 4812 \\ 1007 \\ + 6715 \\ \hline \end{array}$$

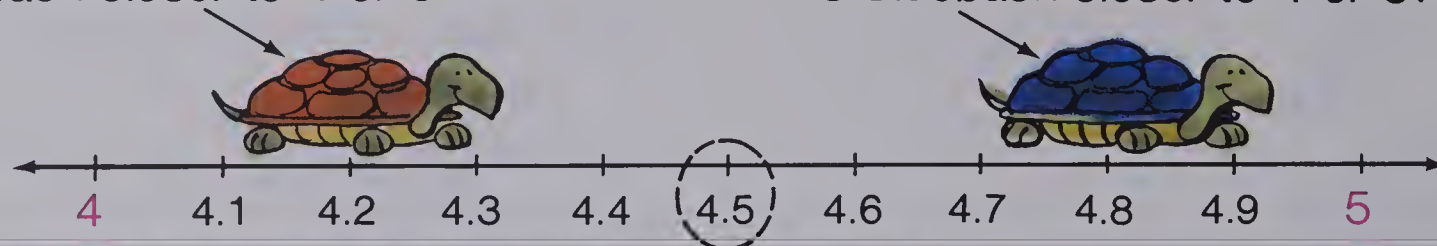
8.

$$\begin{array}{r} 6241 \\ 506 \\ 1285 \\ + 4719 \\ \hline \end{array}$$

# Rounding Decimals

Is Redback closer to 4 or 5?

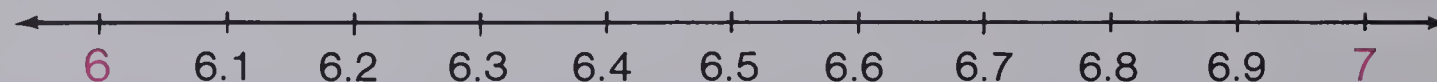
Is Blueback closer to 4 or 5?



## Exercises

Refer to the display.

- Which decimals are closer to 4 than 5?
  - Which are closer to 5?
- Round each decimal to the nearest whole number.



6.1 → 6

6.6 → ■

6.2 → ■

6.7 → ■

6.3 → ■

6.8 → ■

6.4 → ■

6.9 → ■

- Is 6.5 closer to 6 or 7?

A number halfway between two numbers is rounded to the greater number.

Round to the nearest whole number.

4. 4.3

5. 6.8

6. 24.7

7. 56.2

8. 18.5

9. 12.1

10. 82.9

11. 3.3

12. 5.7

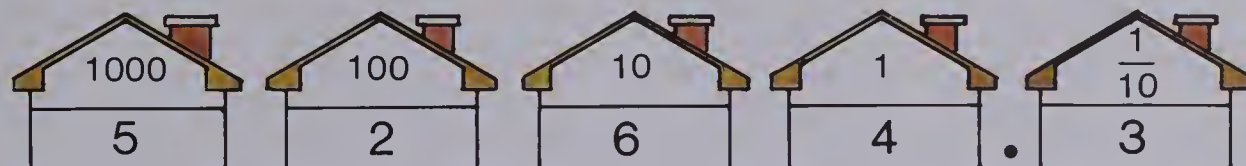
13. 27.4

14. 40.6

15. 7.5

# Next-Door Neighbours

**CHALLENGE** Round 5264.3 to the nearest multiple of 1.



**Step 1**

Find the digit to be rounded.

5264.3



**Step 2**

Find the next-door neighbour on the right. 5264.3

**Step 3**

If the neighbour is 5 or greater, round up.  
If the neighbour is 4 or less, digit remains the same.

**Exercises** Use the 3 steps to help you round.

1. 5 2 6 4 . 3

1	5	2	6	4
10	5	2	6	0
100	5	3	0	0
1000	5	0	0	0

2. 3 4 2 7 . 5

1	3	4	2	7
10				
100				
1000				

3. 2 7 5 2 . 6

1	2	7	5	2
10				
100				
1000				

4. Copy and complete the chart.

Round:

	4263.4	6593.8	9227.6	5735.2	8189.1	6399.9
to nearest multiple of 1.	4263					
to nearest multiple of 10.	4260					
to nearest multiple of 100.	4300					
to nearest multiple of 1000.	4000					



# On the Road

Vicky sells books for the Hastings Company.  
She uses **estimation** to help her when she drives.

Wilton to Fairview: 107.2 km

Fairview to Klinton: 285.7 km

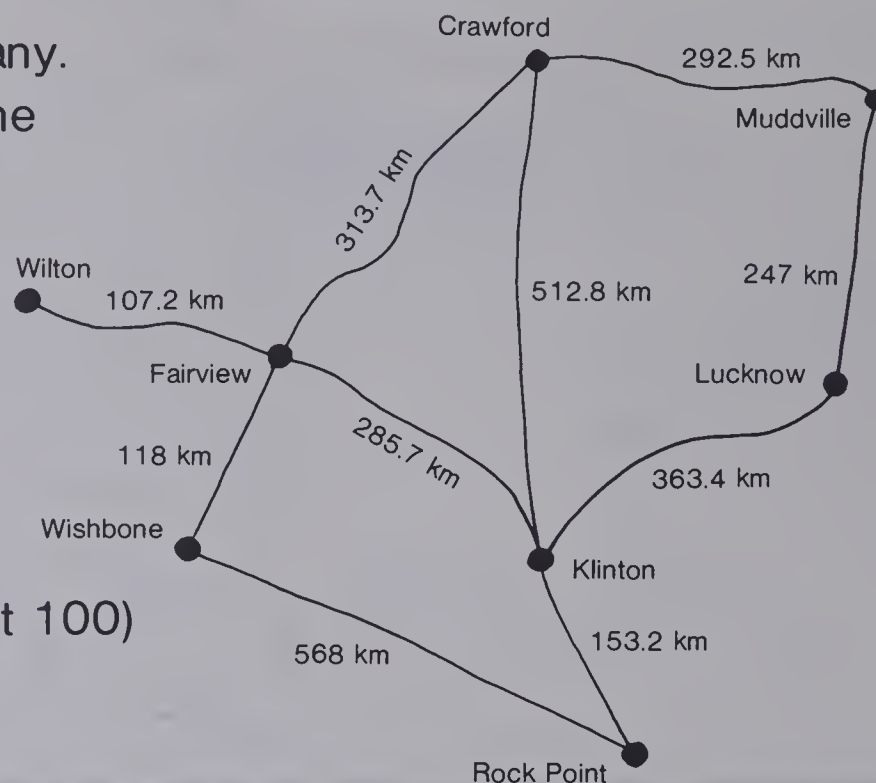
About how many kilometres altogether?

Vicky thought:  $107.2 + 285.7$

Vicky rounded off:  $100 + 300$  (nearest 100)

Vicky estimated:  $100 + 300 = 400$

The distance is about 400 km altogether.



## Exercises

Help Vicky estimate these distances.

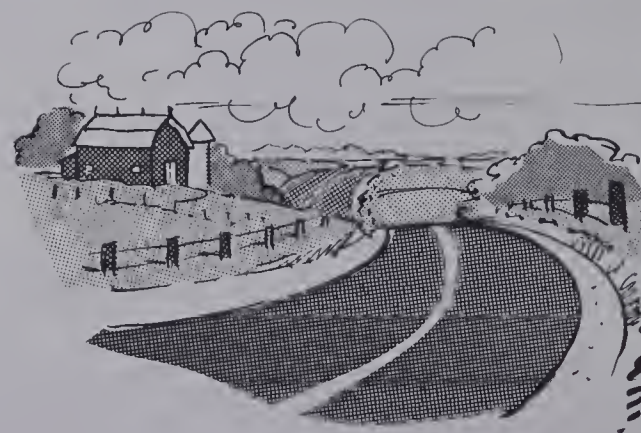
1. Crawford to Lucknow by way of Muddville.

Vicky thought:  $292.5 + 247$

Vicky rounded off:  $\blacksquare + \blacksquare$  (nearest 100)

Vicky estimated:  $\blacksquare + \blacksquare = \blacksquare$

The distance is about  $\blacksquare$  km altogether.



2. Muddville to Klinton by way of Lucknow.
3. Fairview to Rock Point by way of Wishbone.
4. Wilton to Crawford by way of Fairview.
5. Fairview to Muddville by way of Crawford.
6. Crawford to Rock Point by way of Klinton.
7. Rock Point to Fairview by way of Klinton.

# Engineer



## Exercises

Estimate, then calculate the answers.

1. The Lewiston Bridge over the Niagara River is 312.9 m long.  
The Forth Bridge in Scotland is 511.8 m long.  
How much longer is the Forth Bridge?
2. The highest bridge in Colorado is 315.9 m high.  
The Great Pyramid is 134.7 m high.  
How much higher is the bridge?
3. The Humber Bridge in England is 1387.8 m long.  
The Ambassador Bridge in Detroit is 555 m long.  
What would the total distance be if they were placed end to end?
4. The Goodyear Airship hanger is 352.5 m wide.  
The widest bridge in Rhode Island is 344.1 m wide.  
What would the total width be if they were placed side by side?
5. The C.N. Tower is 541.5 m tall.  
The longest covered bridge is 384.6 m long.  
If the Tower were placed on its side, how much longer would it be than the bridge?

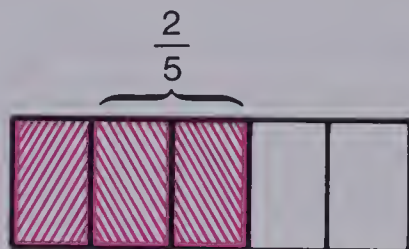


# Painting Fences

Murray paints  $\frac{1}{5}$ .



Then Sandy paints  $\frac{2}{5}$ .



How many fifths of the fence are painted?

$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$

$\frac{3}{5}$  of the fence is painted.



Find a rule to help you add.

## Exercises

Add. Use your rule.

1.  $\frac{2}{5} + \frac{2}{5} = \blacksquare$

2.  $\frac{3}{6} + \frac{2}{6} = \blacksquare$

3.  $\frac{4}{10} + \frac{2}{10} = \blacksquare$

4.  $\frac{3}{8} + \frac{4}{8} = \blacksquare$

5.  $\frac{1}{4} + \frac{1}{4} = \blacksquare$

6.  $\frac{5}{9} + \frac{2}{9} = \blacksquare$

7.  $\frac{7}{12} + \frac{4}{12} = \blacksquare$

8.  $\frac{1}{6} + \frac{2}{6} = \blacksquare$

9.  $\frac{3}{10} + \frac{6}{10} = \blacksquare$

10.  $\frac{1}{5} + \frac{3}{5} = \blacksquare$

11.  $\frac{4}{7} + \frac{1}{7} = \blacksquare$

12.  $\frac{2}{4} + \frac{1}{4} = \blacksquare$

13.  $\frac{4}{10} + \frac{4}{10} = \blacksquare$

14.  $\frac{1}{5} + \frac{2}{5} = \blacksquare$

15.  $\frac{1}{6} + \frac{4}{6} = \blacksquare$

16.  $\frac{1}{3} + \frac{1}{3} = \blacksquare$

17.  $\frac{2}{8} + \frac{5}{8} = \blacksquare$

18.  $\frac{1}{10} + \frac{2}{10} = \blacksquare$

19.  $\frac{2}{5} + \frac{1}{5} = \blacksquare$

20.  $\frac{8}{12} + \frac{4}{12} = \blacksquare$

★ 21.  $\frac{9}{20} + \frac{21}{20} = \blacksquare$

★ 22.  $\frac{15}{50} + \frac{35}{50} = \blacksquare$

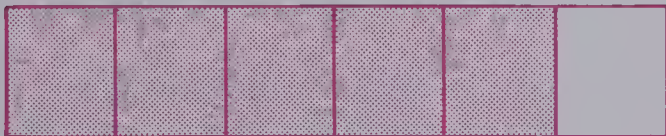
★ 23.  $\frac{23}{50} + \frac{14}{50} = \blacksquare$

★ 24.  $\frac{15}{100} + \frac{23}{100} = \blacksquare$

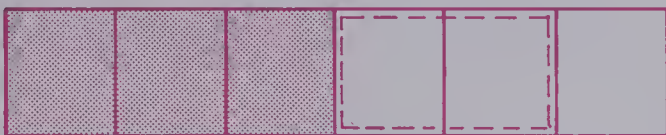


# Washing Windows

$\frac{5}{6}$  of the windows are dirty.



Michael washed  $\frac{2}{6}$ .



What fraction of the windows are left to wash?

$$\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$$

$\frac{3}{6}$  of the windows are left to wash.



Find a rule to help you subtract.

## Exercises

Subtract. Use your rule.

1.  $\frac{4}{6} - \frac{3}{6} = \blacksquare$

2.  $\frac{4}{5} - \frac{1}{5} = \blacksquare$

3.  $\frac{7}{10} - \frac{3}{10} = \blacksquare$

4.  $\frac{3}{4} - \frac{1}{4} = \blacksquare$

5.  $\frac{10}{12} - \frac{7}{12} = \blacksquare$

6.  $\frac{2}{3} - \frac{1}{3} = \blacksquare$

7.  $\frac{5}{8} - \frac{2}{8} = \blacksquare$

8.  $\frac{4}{7} - \frac{2}{7} = \blacksquare$

9.  $\frac{5}{9} - \frac{4}{9} = \blacksquare$

10.  $\frac{5}{6} - \frac{2}{6} = \blacksquare$

11.  $\frac{10}{10} - \frac{6}{10} = \blacksquare$

12.  $\frac{7}{8} - \frac{6}{8} = \blacksquare$

13.  $\frac{7}{12} - \frac{1}{12} = \blacksquare$

14.  $\frac{3}{5} - \frac{2}{5} = \blacksquare$

15.  $\frac{6}{8} - \frac{3}{8} = \blacksquare$

16.  $\frac{7}{7} - \frac{6}{7} = \blacksquare$

17.  $\frac{5}{10} - \frac{2}{10} = \blacksquare$

18.  $\frac{5}{5} - \frac{3}{5} = \blacksquare$

19.  $\frac{2}{4} - \frac{1}{4} = \blacksquare$

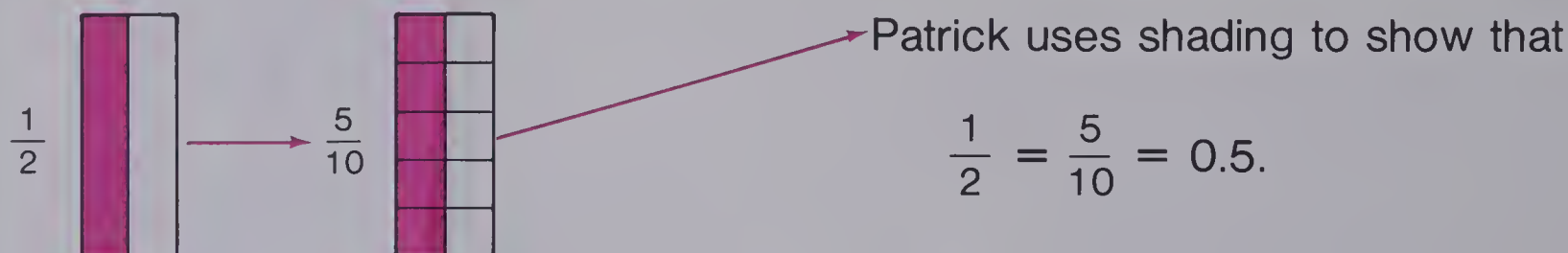
20.  $\frac{9}{10} - \frac{4}{10} = \blacksquare$

★ 21.  $\frac{19}{20} - \frac{8}{20} = \blacksquare$

★ 22.  $\frac{35}{50} - \frac{35}{50} = \blacksquare$

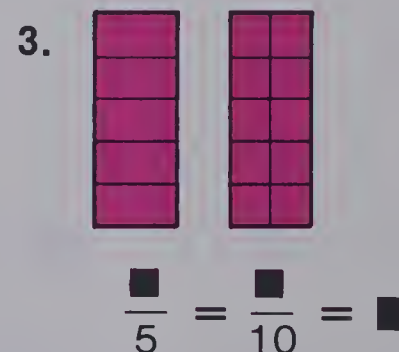
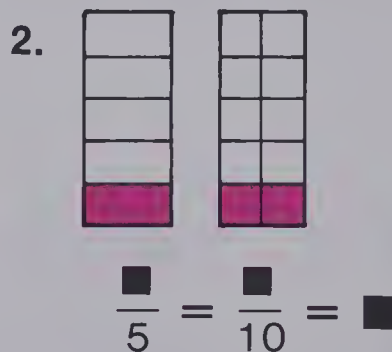
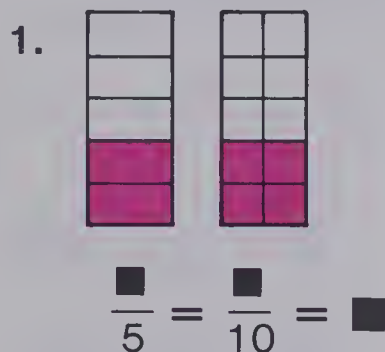
★ 23.  $\frac{88}{100} - \frac{33}{100} = \blacksquare$

# Changing Fractions to Decimals



## Exercises

Use the shading to change these fractions to decimals.



Change these tenths to decimals.

4.  $\frac{3}{10}$

5.  $\frac{7}{10}$

6.  $\frac{1}{10}$

7.  $\frac{10}{10}$

8.  $\frac{5}{10}$

9.  $\frac{4}{10}$

10.  $\frac{8}{10}$

Write each fraction as tenths, then change to a decimal.

11.  $\frac{3}{5} = \frac{\blacksquare}{10} = \blacksquare$

12.  $\frac{2}{2} = \frac{\blacksquare}{10} = \blacksquare$

13.  $\frac{1}{5} = \frac{\blacksquare}{10} = \blacksquare$

14.  $\frac{2}{5} = \frac{\blacksquare}{10} = \blacksquare$

15.  $\frac{5}{5} = \frac{\blacksquare}{10} = \blacksquare$

16.  $\frac{1}{2} = \frac{\blacksquare}{10} = \blacksquare$

# Adding and Subtracting

We can use decimals to add fractions.

Fred ate  $\frac{1}{5}$  of the pie for lunch.

He ate  $\frac{1}{10}$  for dinner.

How much did he eat?

He ate 0.3 of the pie.

He ate  $\frac{1}{5} + \frac{1}{10}$ .

Change the fractions to decimals.

$$\frac{1}{5} + \frac{1}{10} = 0.2 + 0.1 \\ = 0.3$$

$$\frac{1}{5} = 0.2 \\ \frac{1}{10} = 0.1$$

## Exercises

Change to decimals, then add.

$$1. \frac{1}{5} + \frac{2}{5} = \blacksquare \rightarrow 0.2 + 0.4 = \blacksquare$$

$$2. \frac{3}{10} + \frac{5}{10} \rightarrow 0.3 + 0.5 = \blacksquare$$

$$3. \frac{3}{5} + \frac{1}{5} = \blacksquare$$

$$4. \frac{1}{10} + \frac{4}{10} = \blacksquare$$

$$5. \frac{4}{5} + \frac{1}{5} = \blacksquare$$

$$6. \frac{6}{10} + \frac{3}{10} = \blacksquare$$

$$7. \frac{1}{2} + \frac{1}{5} = \blacksquare$$

$$8. \frac{2}{10} + \frac{7}{10} = \blacksquare$$

Change to decimals, then subtract.

$$9. \frac{4}{5} - \frac{1}{5} = \blacksquare \rightarrow 0.8 - 0.2 = \blacksquare$$

$$10. \frac{8}{10} - \frac{3}{10} = \blacksquare \rightarrow 0.8 - 0.3 = \blacksquare$$

$$11. \frac{3}{5} - \frac{2}{5} = \blacksquare$$

$$12. \frac{5}{5} - \frac{3}{5} = \blacksquare$$

$$13. \frac{7}{10} - \frac{3}{10} = \blacksquare$$

$$14. \frac{9}{10} - \frac{5}{10} = \blacksquare$$

$$15. \frac{4}{5} - \frac{1}{2} = \blacksquare$$

$$16. \frac{5}{10} - \frac{1}{10} = \blacksquare$$


$$17. \frac{6}{10} - \frac{4}{10} = \blacksquare$$

$$18. \frac{9}{10} - \frac{3}{10} = \blacksquare$$

$$19. \frac{4}{10} - \frac{1}{10} = \blacksquare$$



# Fractions

	Fractions of a Set
3 ← number of deer with antlers	
5 ← number of deer	
$\frac{3}{5}$ of the deer have antlers.	

## Exercises

1.

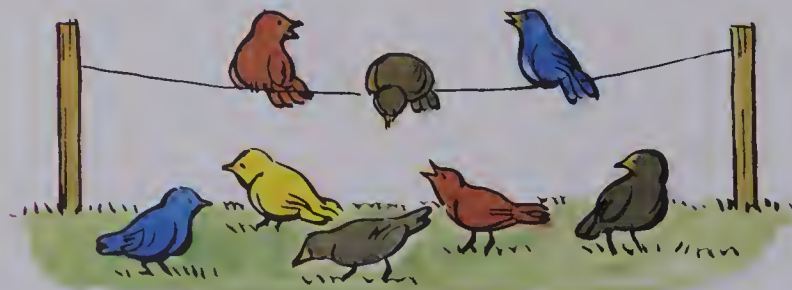


How many trees are decorated?

How many trees in all?

Write a fraction for the trees decorated.

3. Write a fraction for the birds on the wire.

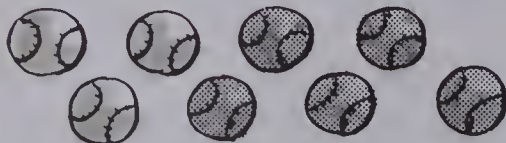


Write a fraction for the shaded part of each set.

5.



7.



2.

Write a fraction for the boys with dogs.



4. Write a fraction for the children in the water.



6.



8.



# Finding Parts of a Set



10 flowers.

$\frac{1}{2}$  shaded.

How many shaded?

$$\frac{1}{2} \text{ of } 10 = 5$$

$$10 \div 2 = 5$$

● of the flowers are shaded.



$\frac{1}{3}$  of dogs are sitting.

How many sitting?

Copy and complete.  $\frac{1}{3}$  of 6 = ■

$$6 \div 3 = \blacktriangledown$$

▼ of the dogs are sitting.

## Exercises

Complete.

1.



$$\frac{1}{2} \text{ of } 6 = \blacksquare$$

$$6 \div 2 = \blacksquare$$

2.



$$\frac{1}{4} \text{ of } 12 = \blacksquare$$

$$12 \div 4 = \blacksquare$$

3.



$$\frac{1}{5} \text{ of } 15 = \blacksquare$$

$$15 \div 5 = \blacksquare$$

4.



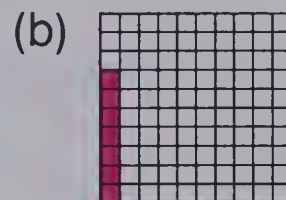
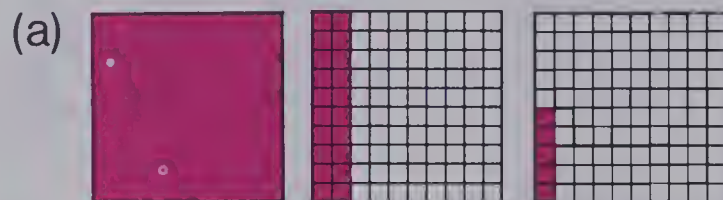
$$\frac{1}{3} \text{ of } 12 = \blacksquare$$

$$12 \div 3 = \blacksquare$$



# Chapter Test

1. Write the decimal for each.



2. Write as a decimal.

(a)  $\frac{24}{100}$

(b)  $\frac{5}{100}$

(c)  $\frac{1}{2}$

(d)  $\frac{1}{5}$

3. Write the numeral: one hundred and twenty-seven hundredths.

4. Compare. Use  $>$ ,  $<$ , or  $=$ .

(a)  $321.6 \bullet 321.7$

(b)  $54.73 \bullet 547.3$

(c)  $7.5 + 3.1 \bullet 10.4$

5. Find the missing addend.

(a)  $33 + \blacksquare = 54$

(b)  $\blacksquare + 31.2 = 64.1$

(c)  $7.5 + \blacksquare = 12.3$

6. Round:

(a) 825.3 to the nearest multiple of 100.

(b) 135.5 to the nearest whole number.

7. Add.

(a) 
$$\begin{array}{r} 291.37 \\ + 264.38 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 1458.72 \\ + 432.19 \\ \hline \end{array}$$

8. Subtract.

(a) 
$$\begin{array}{r} 384.42 \\ - 196.59 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 1564.79 \\ - 961.92 \\ \hline \end{array}$$



# Cumulative Review

1. Name the shape.

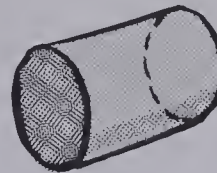
(a)



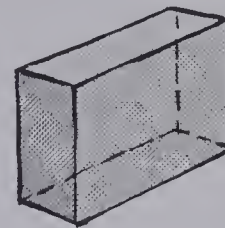
(b)



(c)



(d)



2. Compare. Use  $>$ ,  $<$ , or  $=$ .

(a)  $16.1 \bullet 14.8$

(b)  $25 + 18 \bullet 33$

(c)  $72 - 38 \bullet 34$

3. Find the missing addends.

(a)  $14 + \blacksquare = 37$

(b)  $\blacksquare + 1.5 = 2.4$

(c)  $\$4.95 + \blacksquare = \$10.50$

4. Round to the nearest multiple of 100.

(a) 362

(b) 209

(c) 851

5. Add.

$$\begin{array}{r} 307.4 \\ 462.0 \\ + 811.8 \\ \hline \end{array}$$

$$\begin{array}{r} 7205 \\ 8391 \\ + 7640 \\ \hline \end{array}$$

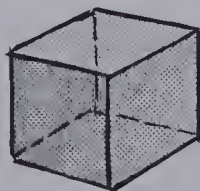
6. Subtract.

$$\begin{array}{r} 4705.1 \\ - 3297.5 \\ \hline \end{array}$$

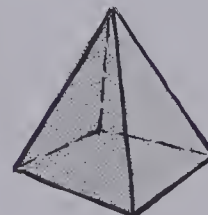
$$\begin{array}{r} 810.2 \\ - 35.6 \\ \hline \end{array}$$

7. How many corners, edges, and faces?

(a)



(b)



Solve.

8. Leaping Louie, the champion jumping frog, made a jump of 4.16 m. Then he made a jump of 3.95 m. How far did he jump altogether?

# Chapter 9

# Computation

Multiplication and Division

Area and Volume



# Tune Up

Multiply.

1. (a)  $6 \times 5 \times 4$  (b)  $2 \times 8 \times 5$  (c)  $3 \times 4 \times 5$  (d)  $7 \times 4 \times 2$  (e)  $8 \times 3 \times 5$

2. (a)  $\begin{array}{r} 100 \\ \times 4 \\ \hline \end{array}$  (b)  $\begin{array}{r} 200 \\ \times 5 \\ \hline \end{array}$  (c)  $\begin{array}{r} 400 \\ \times 6 \\ \hline \end{array}$  (d)  $\begin{array}{r} 700 \\ \times 3 \\ \hline \end{array}$  (e)  $\begin{array}{r} 600 \\ \times 7 \\ \hline \end{array}$

3. (a)  $\begin{array}{r} 47 \\ \times 6 \\ \hline \end{array}$  (b)  $\begin{array}{r} 38 \\ \times 4 \\ \hline \end{array}$  (c)  $\begin{array}{r} 73 \\ \times 9 \\ \hline \end{array}$  (d)  $\begin{array}{r} 28 \\ \times 7 \\ \hline \end{array}$  (e)  $\begin{array}{r} 85 \\ \times 5 \\ \hline \end{array}$

4. (a)  $\begin{array}{r} 227 \\ \times 6 \\ \hline \end{array}$  (b)  $\begin{array}{r} 142 \\ \times 9 \\ \hline \end{array}$  (c)  $\begin{array}{r} 353 \\ \times 4 \\ \hline \end{array}$  (d)  $\begin{array}{r} 482 \\ \times 8 \\ \hline \end{array}$  (e)  $\begin{array}{r} 299 \\ \times 7 \\ \hline \end{array}$

Divide.

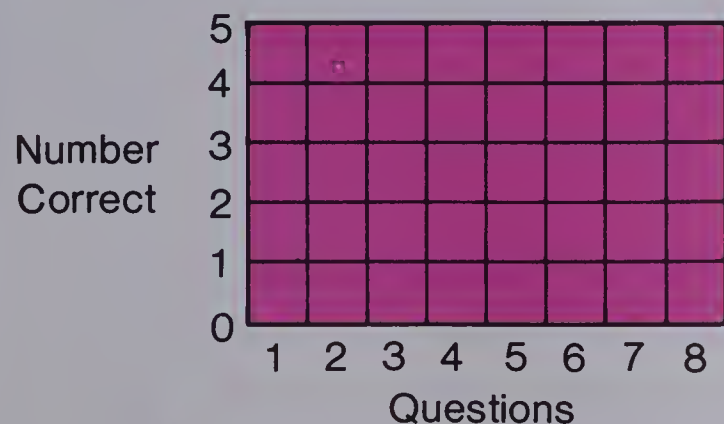
5. (a)  $8 \div 1$  (b)  $1 \overline{)45}$  (c)  $15 \div 1$  (d)  $1 \overline{)635}$  (e)  $99 \div 1$

6. (a)  $33 \div 8$  (b)  $5 \overline{)47}$  (c)  $52 \div 7$  (d)  $9 \overline{)68}$  (e)  $46 \div 6$

7. (a)  $124 \div 4$  (b)  $5 \overline{)230}$  (c)  $296 \div 8$  (d)  $3 \overline{)111}$  (e)  $477 \div 9$

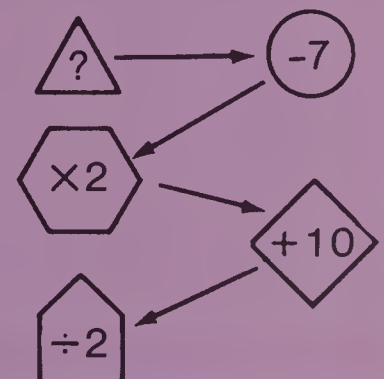
8. (a)  $0 \div 3$  (b)  $8 \div 8$  (c)  $0 \div 16$  (d)  $0 \div 47$  (e)  $38 \div 38$

Copy the chart. Graph your results.



## BRAINTICKLER

The final answer is 16.  
What number did I start with?

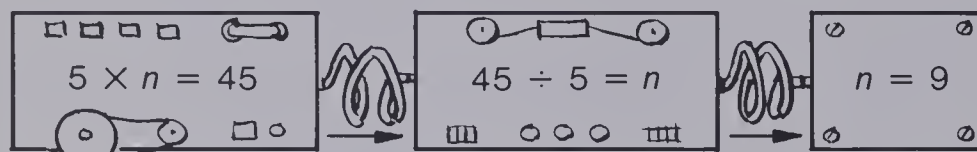




# Machines for Missing Factors

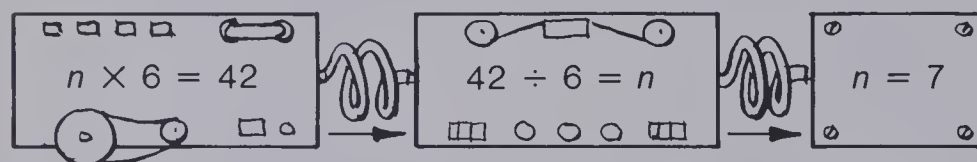
Dr. Morrow has invented a machine.

Colette uses it to find the missing factor in  $5 \times n = 45$ .



Now Colette can write  $5 \times 9 = 45$ .

Tony uses it to find the missing factor in  $n \times 6 = 42$ .

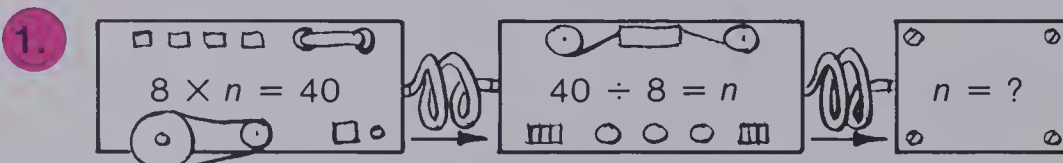


Now Tony can write  $7 \times 6 = 42$ .

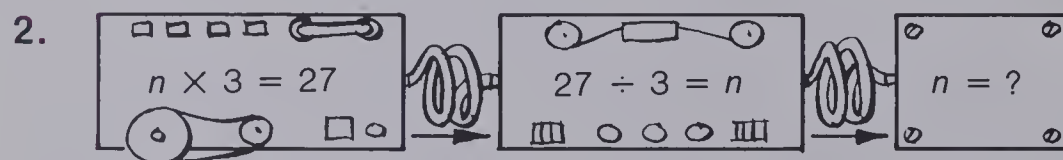
Describe how the machine works!

## Exercises

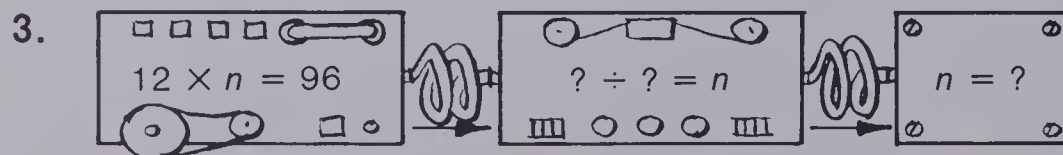
Find the missing factors.



You can write  $8 \times ? = 40$ .



You can write  $? \times 3 = 27$ .



You can write                     .

4. (a)  $6 \times n = 24$  (b)  $6 \times n = 30$  (c)  $5 \times n = 70$  (d)  $10 \times n = 40$

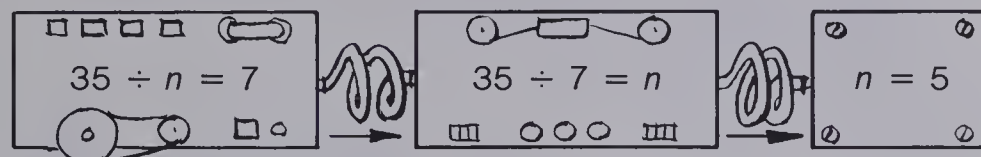
5. (a)  $n \times 8 = 56$  (b)  $n \times 9 = 36$  (c)  $n \times 11 = 55$  (d)  $n \times 8 = 48$

6. (a)  $3 \times n = 66$  (b)  $n \times 7 = 91$  (c)  $6 \times n = 72$  (d)  $n \times 8 = 32$

# Division Machines

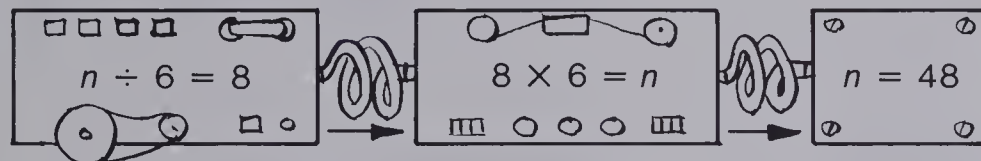
Dr. Morrow's machine can be used another way!

Colette uses it to find the missing divisor in  $35 \div n = 7$ .



Now Colette can write  $35 \div 5 = 7$ .

Tony uses it to find the missing dividend in  $n \div 6 = 8$ .

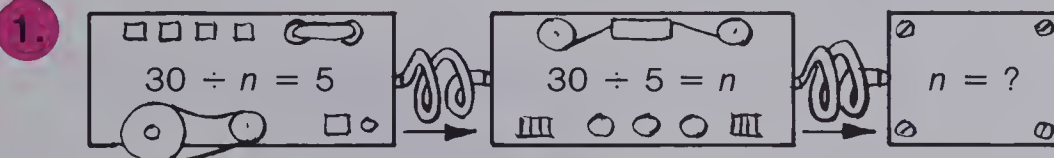


Now Tony can write  $48 \div 6 = 8$ .

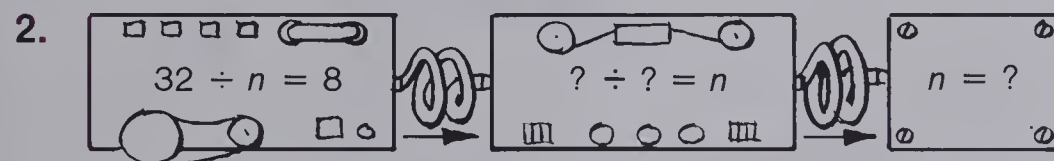
Describe how the machine works this time!

## Exercises

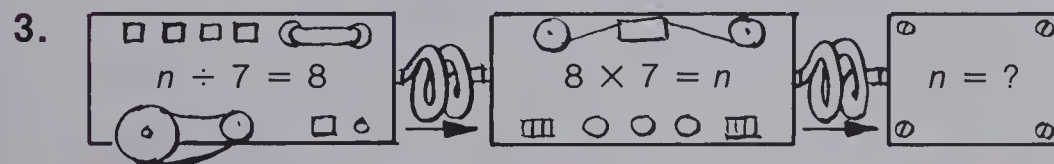
Find the missing numbers.



You can write  $30 \div ? = 5$ .



You can write                     .



You can write  $? \div 7 = 8$ .

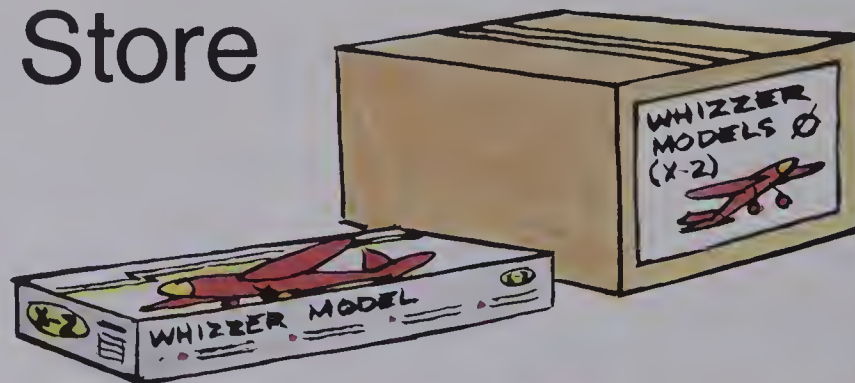
4. (a)  $12 \div n = 6$     (b)  $28 \div n = 4$     (c)  $42 \div n = 6$     (d)  $49 \div n = 7$

5. (a)  $n \div 8 = 3$     (b)  $n \div 9 = 5$     (c)  $n \div 5 = 4$     (d)  $n \div 4 = 6$

6. (a)  $80 \div n = 10$     (b)  $n \div 8 = 9$     (c)  $40 \div n = 5$     (d)  $n \div 9 = 3$

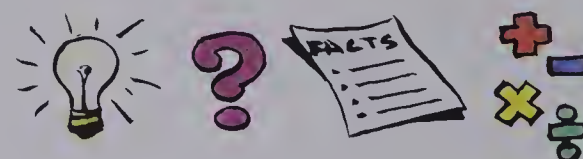
# Toy Store

9 cartons of model airplanes.  
There are  $n$  airplanes in each carton.  
45 airplanes altogether.  
How many airplanes in each case?



Step 1 Answer Professor Q's four questions mentally.

Step 2 Write an open number sentence.



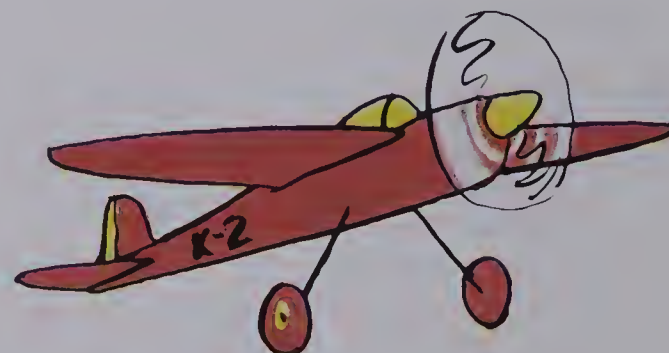
9	×	$n$	=	45
Number of cartons		Number of airplanes in each carton		Number of airplanes altogether

Step 3 Rewrite to make the sentence easier.

$$45 \div 9 = n$$

Step 4 Make the sentence true.

$$45 \div 9 = 5$$



There are 5 model airplanes in each carton.

## Exercises

Complete.

- $n$  cartons of puppets.  
6 puppets in each carton.  
18 puppets altogether.  
How many cartons?

- Professor Q
- $n \times 6 = 18$
- $18 \div 6 = n$
- $18 \div 6 = ?$

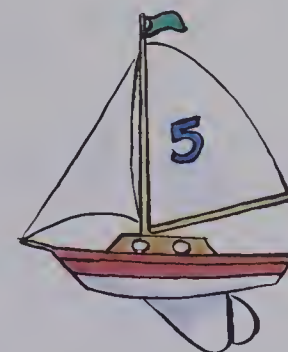
There are ? cartons.





2. 24 sailboats.  
 $n$  sailboats in each box.  
4 boxes.  
How many sailboats in each box?

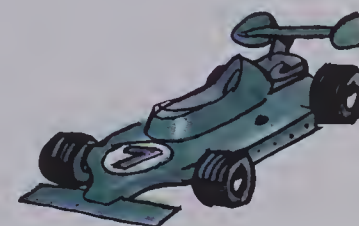
1. Professor Q
2.  $24 \div n = 4$
3.  $24 \div 4 = n$
4.  $24 \div 4 = ?$



There are ? sailboats in each box.

3.  $n$  racing cars.  
5 cars in each box.  
6 boxes.  
How many racing cars altogether?

1. Professor Q
2.  $n \div 5 = 6$
3.  $6 \times 5 = n$
4.  $6 \times 5 = ?$



There are ? racing cars altogether.

Solve. Use the four steps to help you.

4. 7 cartons of “slinky dogs”.  
 $n$  dogs in each carton.  
63 dogs altogether.  
How many slinky dogs in each carton?

5.  $n$  rockets.  
7 rockets in each box.  
8 boxes.  
How many rockets altogether?

6. 24 woodburning sets.  
 $n$  sets in each box.  
8 boxes.  
How many woodburning sets in each box?

7.  $n$  cartons of steam engines.  
6 engines in each carton.  
72 engines altogether.  
How many cartons of steam engines?

# Number Patterns

Sandy uses number patterns to help her multiply decimals.

$0.7 \times 10$	$2.8 \times 10$	$32.7 \times 10$
$70 \times 10 = 700$	$280 \times 10 = 2800$	$3270 \times 10 = 32\,700$
$7 \times 10 = 70$	$28 \times 10 = 280$	$327 \times 10 = 3\,270$
$0.7 \times 10 = 7$	$2.8 \times 10 = 28$	$32.7 \times 10 = 327$

Can you describe the pattern?

Make a rule to help you multiply a decimal by 10.

## Exercises

Complete these patterns.

1.  $50 \times 10 = 500$   
 $5 \times 10 = \blacksquare$   
 $0.5 \times 10 = \blacksquare$

2.  $420 \times 10 = 4200$   
 $42 \times 10 = \blacksquare$   
 $4.2 \times 10 = \blacksquare$

3.  $2360 \times 10 = 23\,600$   
 $236 \times 10 = \blacksquare$   
 $23.6 \times 10 = \blacksquare$

4.  $730 \times 10 = \blacksquare$   
 $73 \times 10 = \blacksquare$   
 $7.3 \times 10 = \blacksquare$

5.  $4750 \times 10 = \blacksquare$   
 $475 \times 10 = \blacksquare$   
 $47.5 \times 10 = \blacksquare$

6.  $40 \times 10 = \blacksquare$   
 $4 \times 10 = \blacksquare$   
 $0.4 \times 10 = \blacksquare$

Find each product. Use your rule.

7. (a)  $3 \times 10$   
 (b)  $0.3 \times 10$

8. (a)  $325 \times 10$   
 (b)  $32.5 \times 10$

9. (a)  $57 \times 10$   
 (b)  $5.7 \times 10$

10. (a)  $8 \times 10$   
 (b)  $0.8 \times 10$

11.  $0.6 \times 10$

12.  $2.5 \times 10$

13.  $24.9 \times 10$

14.  $0.2 \times 10$

15.  $8.7 \times 10$

16.  $9.8 \times 10$

17.  $0.3 \times 10$

18.  $1.3 \times 10$

19.  $65.8 \times 10$

20.  $21.1 \times 10$

21.  $0.9 \times 10$

22.  $0.7 \times 10$

# More Number Patterns

Sandy uses number patterns with division too!

$0.7 \div 10$	$2.8 \div 10$	$32.7 \div 10$
$70 \div 10 = 7$	$280 \div 10 = 28$	$3270 \div 10 = 327$
$7 \div 10 = 0.7$	$28 \div 10 = 2.8$	$327 \div 10 = 32.7$
$0.7 \div 10 = 0.07$	$2.8 \div 10 = 0.28$	$32.7 \div 10 = 3.27$

Can you describe the pattern?

Make a rule to help you divide a decimal by 10.

## Exercises

Complete these patterns.

1.  $60 \div 10 = 6$   
 $6 \div 10 = \blacksquare$   
 $0.6 \div 10 = \blacksquare$

2.  $350 \div 10 = 35$   
 $35 \div 10 = \blacksquare$   
 $3.5 \div 10 = \blacksquare$

3.  $4350 \div 10 = 435$   
 $435 \div 10 = \blacksquare$   
 $43.5 \div 10 = \blacksquare$

4.  $820 \div 10 = \blacksquare$   
 $82 \div 10 = \blacksquare$   
 $8.2 \div 10 = \blacksquare$

5.  $40 \div 10 = \blacksquare$   
 $4 \div 10 = \blacksquare$   
 $0.4 \div 10 = \blacksquare$

6.  $7950 \div 10 = \blacksquare$   
 $795 \div 10 = \blacksquare$   
 $79.5 \div 10 = \blacksquare$

Find each quotient.

7. (a)  $6 \div 10$   
 (b)  $0.6 \div 10$

8. (a)  $247 \div 10$   
 (b)  $24.7 \div 10$

9. (a)  $35 \div 10$   
 (b)  $3.5 \div 10$

10. (a)  $87 \div 10$   
 (b)  $8.7 \div 10$

11.  $7 \div 10$

12.  $0.7 \div 10$

13.  $25.5 \div 10$

14.  $148.2 \div 10$

15.  $0.9 \div 10$

16.  $1.6 \div 10$

17.  $14.7 \div 10$

18.  $28.2 \div 10$

19.  $0.5 \div 10$

20.  $0.1 \div 10$

21.  $5.5 \div 10$

22.  $8.1 \div 10$



# Farmers' Market

43 boxes of cucumbers.  
25 cucumbers in each box.  
How many cucumbers altogether?

$$43 \times 25$$



Multiply ones.

$$\begin{array}{r} 43 \\ \times 25 \\ \hline 215 \end{array} \quad (5 \times 43)$$

Multiply tens.

$$\begin{array}{r} 43 \\ \times 25 \\ \hline 215 \\ 860 \end{array} \quad (20 \times 43)$$

Add.

$$\begin{array}{r} 43 \\ \times 25 \\ \hline 215 \\ 860 \\ \hline 1075 \end{array}$$

There are      cucumbers altogether.

## Exercises

1. Complete.

$$\begin{array}{r} 57 \\ \times 36 \\ \hline \end{array}$$

Multiply ones.

$$6 \times 57 = \text{■}$$

$$\begin{array}{r} 57 \\ \times 36 \\ \hline 342 \end{array}$$

Multiply tens.

$$30 \times 57 = \text{■}$$

$$\begin{array}{r} 57 \\ \times 36 \\ \hline 342 \\ 1710 \end{array}$$

Add.

$$342 + 1710 = \text{■}$$

$$\begin{array}{r} 57 \\ \times 36 \\ \hline 342 \\ 1710 \\ \hline \text{■} \end{array}$$

2. Complete.

$$\begin{array}{r} 63 \\ \times 35 \\ \hline \end{array}$$

Multiply ones.

$$5 \times 63 = \text{■}$$

$$\begin{array}{r} 63 \\ \times 35 \\ \hline \end{array}$$

Multiply tens.

$$30 \times 63 = \text{■}$$

$$\begin{array}{r} 63 \\ \times 35 \\ \hline \end{array}$$

Add.

$$\text{■} + \text{■} = \text{■}$$

$$\begin{array}{r} 63 \\ \times 35 \\ \hline \text{■} \\ \text{■} \\ \hline \text{■} \end{array}$$

Complete.

$$\begin{array}{r} 3. \quad 48 \\ \times 24 \\ \hline \end{array}$$

192

960

\_\_\_\_\_

$$\begin{array}{r} 4. \quad 52 \\ \times 37 \\ \hline \end{array}$$

364

\_\_\_\_\_

\_\_\_\_\_

$$\begin{array}{r} 5. \quad 28 \\ \times 46 \\ \hline \end{array}$$

\_\_\_\_\_

1120

\_\_\_\_\_

$$\begin{array}{r} 6. \quad 85 \\ \times 27 \\ \hline \end{array}$$

\_\_\_\_\_

\_\_\_\_\_

2295

$$\begin{array}{r} 7. \quad 63 \\ \times 94 \\ \hline \end{array}$$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Multiply.

$$\begin{array}{r} 8. \quad 43 \\ \times 38 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 63 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 49 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 45 \\ \times 36 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 52 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 27 \\ \times 41 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 56 \\ \times 63 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 39 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 46 \\ \times 17 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 51 \\ \times 81 \\ \hline \end{array}$$

18.  $37 \times 24$     19.  $28 \times 18$     20.  $58 \times 42$     21.  $34 \times 22$     22.  $62 \times 35$

23.  $41 \times 38$     24.  $56 \times 11$     25.  $62 \times 72$     26.  $89 \times 12$     27.  $94 \times 89$

Solve these mini-stories.

28. 28 crates of turnips.  
15 turnips in each crate.  
How many turnips altogether?

29. 83 bunches of carrots.  
12 carrots in each bunch.  
How many carrots altogether?

30. 62 boxes of cabbages.  
36 cabbages in each box.  
How many cabbages altogether?

31. 55 cartons of beans.  
36 packages in each carton.  
How many packages altogether?

# Tune Up

Multiply.

1.  $35 \times 10$

2.  $58 \times 10$

3.  $68 \times 10$

4.  $54 \times 10$

5.  $13 \times 100$

6.  $83 \times 100$

7.  $68 \times 100$

8.  $49 \times 100$

9.  $47 \times 1000$

10.  $34 \times 1000$

11.  $29 \times 1000$

12.  $87 \times 1000$

Divide.

13.  $90 \div 10$

14.  $10 \overline{)50}$

15.  $900 \div 10$

16.  $10 \overline{)360}$

17.  $400 \div 100$

18.  $100 \overline{)700}$

19.  $300 \div 100$

20.  $100 \overline{)4500}$

21.  $6000 \div 1000$

22.  $1000 \overline{)8000}$

23.  $2000 \div 1000$

24.  $1000 \overline{)86\ 000}$

Multiply.

25.  $10 \times 40$

26.  $100 \times 20$

27.  $1 \times 60$

28.  $40 \times 50$

29.  $60 \times 40$

30.  $20 \times 30$

31.  $30 \times 50$

32.  $1000 \times 50$

★ Solve these multiplication and division chains.

33.  $45 \times 10 \div 1 = \blacksquare$

34.  $100 \times 5 \div 10 = \blacksquare$

35.  $5000 \div 100 \times 10 = \blacksquare$

36.  $100 \times 64 \div 10 = \blacksquare$

37.  $36 \times 1000 \div 100 = \blacksquare$

38.  $600 \div 20 \times 10 = \blacksquare$

## BRAINTICKLER





# Estimation

Mr. and Mrs. Finley work together at the Farmers' Market.

37 cartons of tomatoes.

23 tomatoes in each carton.

How many tomatoes altogether?

Mr. Finley estimates:

He rounds off:  $40 \times 20$   
(to nearest 10)

He estimates:  $40 \times 20 = 800$

There are *about* 800 tomatoes altogether.

$$37 \times 23$$

Mrs. Finley calculates:

She writes:

$$\begin{array}{r} 37 \\ \times 23 \\ \hline 111 \\ 740 \\ \hline 851 \end{array}$$

There are 851 tomatoes altogether.

The estimate tells us that Mrs. Finley's answer is reasonable.

## Exercises

Estimate, then calculate.

1.  $68 \times 32$

Estimate	Calculate
Think: $68 \times 32$	$32$
Round off: $70 \times 30$	$\times 68$
Estimate: $70 \times 30 = \blacksquare$	<hr/>
	$\blacksquare$
	$\blacksquare$
	<hr/>
	$\blacksquare$

2.  $84$   
 $\times 29$   

---

3.  $34$   
 $\times 28$   

---

4.  $18$   
 $\times 41$   

---

5.  $38$   
 $\times 25$   

---

6.  $41$   
 $\times 58$   

---

7.  $27$   
 $\times 33$   

---

8.  $18 \times 18$     9.  $64 \times 34$     10.  $51 \times 26$     11.  $38 \times 11$     12.  $85 \times 29$

13.  $25 \times 25$     14.  $47 \times 18$     15.  $31 \times 76$     16.  $19 \times 25$     17.  $75 \times 39$

# Construction Worker

24 loads of steel pipe.

336 m of pipe in each load.

How many metres of pipe altogether?

$$24 \times 336$$

Multiply ones.

$$\begin{array}{r} 336 \\ \times 24 \\ \hline 1344 \end{array} \quad (4 \times 336)$$

Multiply tens.

$$\begin{array}{r} 336 \\ \times 24 \\ \hline 1344 \\ 6720 \end{array} \quad (20 \times 336)$$

Add.

$$\begin{array}{r} 336 \\ \times 24 \\ \hline 1344 \\ 6720 \\ \hline 8064 \end{array}$$

There are      m of pipe altogether.

## Exercises

1. Complete.

$$\begin{array}{r} 257 \\ \times 36 \\ \hline \end{array}$$

Multiply by the ones.

$$6 \times 257 = \text{■}$$

$$\begin{array}{r} 257 \\ \times 36 \\ \hline 1542 \end{array}$$

Multiply by the tens.

$$30 \times 257 = \text{■}$$

$$\begin{array}{r} 257 \\ \times 36 \\ \hline 1542 \\ 7710 \end{array}$$

Add.

$$1542 + 7710 = \text{■}$$

$$\begin{array}{r} 257 \\ \times 36 \\ \hline 1542 \\ 7710 \\ \hline \text{■} \end{array}$$

2. Complete.

$$\begin{array}{r} 316 \\ \times 25 \\ \hline \end{array}$$

Multiply by the ones.

$$5 \times 316 = \text{■}$$

$$\begin{array}{r} 316 \\ \times 25 \\ \hline \text{■} \end{array}$$

Multiply by the tens.

$$20 \times 316 = \text{■}$$

$$\begin{array}{r} 316 \\ \times 25 \\ \hline \text{■} \\ \text{■} \end{array}$$

Add.

$$\text{■} + \text{■} = \text{■}$$

$$\begin{array}{r} 316 \\ \times 25 \\ \hline \text{■} \\ \text{■} \\ \hline \text{■} \end{array}$$

Complete.

$$\begin{array}{r} 3. \quad 473 \\ \times 42 \\ \hline 946 \\ 18920 \\ \hline \blacksquare \end{array}$$

$$\begin{array}{r} 4. \quad 528 \\ \times 37 \\ \hline 3696 \\ \blacksquare \\ \hline \blacksquare \end{array}$$

$$\begin{array}{r} 5. \quad 837 \\ \times 53 \\ \hline \blacksquare \\ 41850 \\ \hline \blacksquare \end{array}$$

$$\begin{array}{r} 6. \quad 725 \\ \times 31 \\ \hline \blacksquare \\ \blacksquare \\ \hline 22475 \end{array}$$

$$\begin{array}{r} 7. \quad 682 \\ \times 46 \\ \hline \blacksquare \\ \blacksquare \\ \hline \blacksquare \end{array}$$

$$\begin{array}{r} 8. \quad 365 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 298 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 514 \\ \times 28 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 629 \\ \times 51 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 825 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 525 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 123 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 418 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 254 \\ \times 51 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 389 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 475 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 393 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 595 \\ \times 62 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 862 \\ \times 49 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 219 \\ \times 35 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 651 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 714 \\ \times 48 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 552 \\ \times 17 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 234 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 487 \\ \times 16 \\ \hline \end{array}$$

Solve these mini-stories about an engineer's work.

28. 425 kg of sand in each load.  
12 loads.  
How many kilograms of sand altogether?

29. 14 loads of topsoil.  
326 kg in each load.  
How many kilograms of topsoil altogether?

30. 522 kg of gravel in each load.  
15 loads.  
How many kilograms of gravel altogether?

31. 25 loads of limestone.  
483 kg in each load.  
How many kilograms of limestone altogether?



# Division Review

Let's review the steps of the **long** and **short** forms.

**Long Form**

$$214 \div 4$$

**Short Form**

Multiples of 10

Step 1



$$\begin{array}{r} 50 \\ 4 \overline{)214} \\ \underline{200} \\ 14 \end{array}$$

Estimate 50.  
Write 50.

Step 1



$$\begin{array}{r} 5 \\ 4 \overline{)214} \\ \underline{200} \\ 14 \end{array}$$

Estimate 50.  
Write 5 in  
the ten's place.

Step 2

$$\begin{array}{r} 53 \\ \underline{\phantom{00}} \\ 3 \\ 50 \\ 4 \overline{)214} \\ \underline{200} \\ 14 \\ 12 \\ \underline{\phantom{00}} \\ 2 \text{ R} \end{array}$$

Estimate 3.  
Write 3.

Step 2

$$\begin{array}{r} 53 \text{ R } 2 \\ 4 \overline{)214} \\ \underline{200} \\ 14 \\ 12 \\ \underline{\phantom{00}} \\ 2 \end{array}$$

Estimate 3.  
Write 3 in  
the one's place.  
Show remainder.

## Exercises

Divide. Some have remainders.

2 ■ R ■

$$\begin{array}{r} 1. \quad 6 \overline{)163} \\ \underline{120} \\ 43 \\ \underline{\phantom{00}} \\ \phantom{00} \end{array}$$

$$2. \quad 3 \overline{)126}$$

$$3. \quad 4 \overline{)208}$$

$$4. \quad 5 \overline{)183}$$

$$5. \quad 6 \overline{)248}$$

$$6. \quad 5 \overline{)135}$$

$$7. \quad 4 \overline{)254}$$

$$8. \quad 3 \overline{)215}$$

$$9. \quad 7 \overline{)161}$$

$$10. \quad 6 \overline{)206}$$

$$11. \quad 5 \overline{)210}$$

$$12. \quad 8 \overline{)280}$$

$$13. \quad 7 \overline{)225}$$

# Division and Multiples of 100

Work with John as he divides.

$$940 \div 4$$

Step 1



$$\begin{array}{r} 200 \\ 4 \overline{)940} \\ 800 \\ \hline 140 \end{array}$$

Which multiple  
of 100 did  
John use?

$$\begin{aligned} 4 \times 100 &= 400 \\ 4 \times 200 &= 800 \\ 4 \times 300 &= 1200 \end{aligned}$$

Step 2



$$\begin{array}{r} 30 \\ 200 \\ 4 \overline{)940} \\ 800 \\ \hline 140 \\ 120 \\ \hline 20 \end{array}$$

Which multiple  
of 10 did  
John use?

$$\begin{aligned} 4 \times 20 &= \blacksquare \\ 4 \times 30 &= \blacksquare \\ 4 \times 40 &= \blacksquare \end{aligned}$$

Step 3

235

$$\begin{array}{r} 235 \\ 5 \\ 30 \\ 200 \\ 4 \overline{)940} \\ 800 \\ \hline 140 \\ 120 \\ \hline 20 \\ 20 \\ \hline 0 \end{array}$$

Which multiple  
of 1 did  
John use?

$$\begin{aligned} 4 \times 4 &= \blacksquare \\ 4 \times 5 &= \blacksquare \\ 4 \times 6 &= \blacksquare \end{aligned}$$

## Exercises

Tell which mutiple of 100 is used to start each question.

1.  $\begin{array}{r} 200 \\ 3 \overline{)732} \\ 600 \\ \hline \end{array}$

2.  $\begin{array}{r} \text{c} \blacksquare \blacksquare \blacksquare \\ 7 \overline{)2387} \\ 2100 \\ \hline \end{array}$

3.  $\begin{array}{r} \blacksquare \blacksquare \blacksquare \blacksquare \\ 4 \overline{)544} \\ 400 \\ \hline \end{array}$

4.  $\begin{array}{r} \blacksquare \blacksquare \blacksquare \blacksquare \\ 6 \overline{)2526} \\ 2400 \\ \hline \end{array}$

Decide which multiple of 100 to use, then complete the division.

5.  $6 \overline{)744}$

6.  $4 \overline{)1304}$

7.  $3 \overline{)1263}$

8.  $5 \overline{)660}$

9.  $4 \overline{)2128}$

10.  $6 \overline{)876}$

11.  $3 \overline{)145}$

12.  $4 \overline{)2484}$

13.  $5 \overline{)1165}$

14.  $6 \overline{)931}$

15.  $4 \overline{)564}$

16.  $6 \overline{)1914}$

17.  $7 \overline{)1547}$

18.  $8 \overline{)1888}$

19.  $9 \overline{)4059}$

20.  $7 \overline{)1771}$

# Comparing Division Forms

Let's compare the two forms!


$$741 \div 3$$

**Long Form**

**Short Form**

Multiples of 100.

*Step 1*



$$\begin{array}{r} 200 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \end{array}$$

Estimate 200.  
Write 200.

*Step 1*




$$\begin{array}{r} 2 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \end{array}$$

Estimate 200.  
Write 2 in the  
hundred's place.

Multiples of 10.

*Step 2*



$$\begin{array}{r} 40 \\ 200 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \\ \underline{120} \\ 21 \end{array}$$

Estimate 40.  
Write 40.

*Step 2*



$$\begin{array}{r} 24 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \\ \underline{120} \\ 21 \end{array}$$

Estimate 40.  
Write 4 in the  
ten's place.

Multiples of 1.

*Step 3*

$$\begin{array}{r} 247 \\ \underline{\phantom{000}} \\ 7 \\ 40 \\ 200 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \\ \underline{120} \\ 21 \\ 21 \\ \underline{\phantom{00}} \\ 0 \end{array}$$

Estimate 7.  
Write 7.

*Step 3*

$$\begin{array}{r} 247 \\ 3 \overline{)741} \\ \underline{600} \\ 141 \\ \underline{120} \\ 21 \\ 21 \\ \underline{\phantom{00}} \\ 0 \end{array}$$

Estimate 7.  
Write 7 in  
the one's place.



## Exercises

- Look at the *short form* in the display. In each step, tell what multiple of 100, 10, or 1 is used.
- Tell what each digit means.

(a) 2345

(b) 5063

(c) 74 030

(d) 60 825

Copy and write the missing numbers in these short forms.

3. 
$$\begin{array}{r} 14 \blacksquare \\ 4 \overline{) 568} \\ \underline{400} \\ 168 \\ \underline{160} \\ \blacksquare \\ \blacksquare \\ \hline \blacksquare \end{array}$$

4. 
$$\begin{array}{r} 2 \blacksquare \blacksquare \\ 5 \overline{) 1265} \\ \underline{1000} \\ 265 \\ \blacksquare \blacksquare \blacksquare \\ \hline \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \end{array}$$

5. 
$$\begin{array}{r} \blacksquare \blacksquare \blacksquare \\ 3 \overline{) 1239} \\ \underline{1200} \\ \blacksquare \blacksquare \\ \blacksquare \blacksquare \\ \hline \blacksquare \\ \blacksquare \\ \hline \blacksquare \end{array}$$

Divide using the short form.

6.  $2 \overline{) 632}$

7.  $5 \overline{) 660}$

8.  $4 \overline{) 1248}$

9.  $6 \overline{) 846}$

10.  $7 \overline{) 924}$

11.  $4 \overline{) 1692}$

12.  $3 \overline{) 1560}$

13.  $7 \overline{) 2394}$

14.  $6 \overline{) 3246}$

15.  $3 \overline{) 1023}$

16.  $5 \overline{) 580}$

17.  $4 \overline{) 2132}$

18.  $8 \overline{) 968}$

19.  $6 \overline{) 4338}$

20.  $4 \overline{) 2528}$

21.  $5 \overline{) 3165}$

22.  $4 \overline{) 1932}$

23.  $3 \overline{) 2754}$

24.  $9 \overline{) 1899}$

25.  $8 \overline{) 2664}$

26.  $3 \overline{) 1656}$

27.  $4 \overline{) 1060}$

28.  $7 \overline{) 1890}$

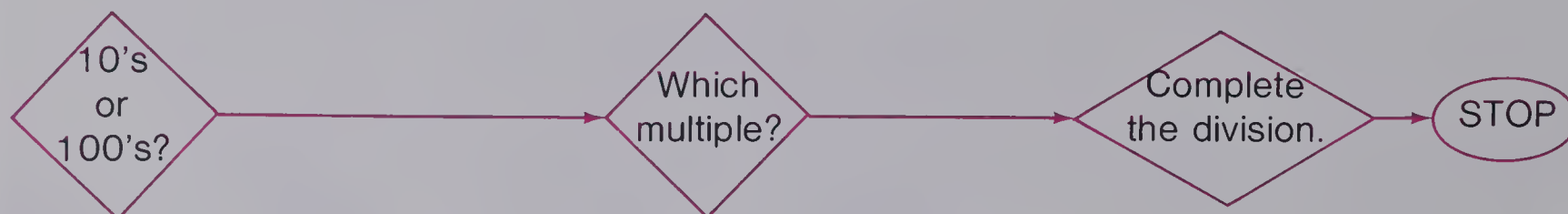
29.  $6 \overline{) 2124}$

30.  $8 \overline{) 1728}$

# Making Decisions in Division

Michelle has discovered a method to help her make decisions in division!

$$\begin{array}{r} \blacksquare \\ 4 \overline{) 137} \end{array}$$



Decide:

multiples of  
10's or 100's?

$$\begin{array}{r} 10 \\ 4 \overline{) 137} \\ 40 \end{array}$$

Choose this one.

$$\begin{array}{r} 100 \\ 4 \overline{) 137} \\ 400 \end{array}$$

Too large.

Decide:

which multiple  
of 10 (or 100)?

$$4 \times 20 = 80$$

$$4 \times 30 = 120$$

$$4 \times 40 = 160$$

Choose this one.

Too large.

Complete the  
division.

$$\begin{array}{r} 34 \text{ R } 1 \\ 4 \overline{) 137} \\ 120 \\ \hline 17 \\ 16 \\ \hline 1 \end{array}$$

## Exercises

Make decisions in these division questions.

1.  $3 \overline{) 129}$

2.  $4 \overline{) 924}$

3.  $6 \overline{) 210}$

4.  $5 \overline{) 1155}$

5.  $6 \overline{) 1416}$

6.  $3 \overline{) 108}$

7.  $7 \overline{) 1491}$

8.  $6 \overline{) 140}$

9.  $4 \overline{) 856}$

10.  $5 \overline{) 1255}$

11.  $4 \overline{) 142}$

12.  $3 \overline{) 373}$

13.  $4 \overline{) 1256}$

14.  $6 \overline{) 204}$

15.  $8 \overline{) 272}$

16.  $4 \overline{) 170}$

17.  $5 \overline{) 1160}$

18.  $7 \overline{) 255}$

19.  $4 \overline{) 148}$

20.  $4 \overline{) 1054}$

# Goodmore Stadium

1. The red section of Goodmore Stadium has 23 rows of seats.  
Each row has 228 seats.  
How many seats are there altogether in the red section?

2. There are 6 refreshment booths in the stadium.  
A total of 5124 hot dogs were sold.  
Each booth sold the same number.  
What is the number of hot dogs sold by each booth?

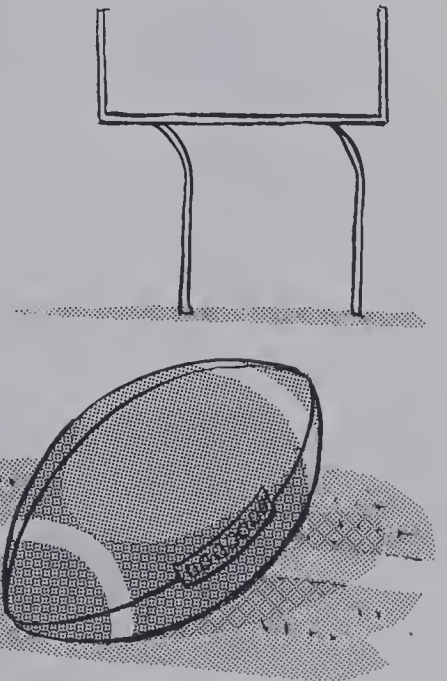
3. A parking lot near the stadium has 38 parking sections.  
Each section holds 257 cars.  
How many cars will the parking lot hold altogether?

4. The stadium secretary mailed tickets.  
There are 8 tickets in each envelope.  
How many envelopes were mailed?

5. The stadium manager bought 2592 L of orange pop.  
Eight coolers are filled.  
How many litres of orange pop are there in each cooler?

6. The seats in the green section of the stadium have to be painted.  
There are 32 rows of seats.  
There are 296 seats in each row.  
How many seats will be painted?

- ★ 7. The stadium just received 565 new seats for the blue section.  
There are 10 rows of seats.  
How many seats will there be in each row?  
How many new seats will be left over?





# The Amazing Discovery of Professor Clark

Professor Clark discovered that 192 is divisible by 2, 3, 4, and 6 but not by 5!

96

2 ) 192

18

12

12

0

64

3 ) 192

18

12

12

0

48

4 ) 192

16

32

32

0

38

5 ) 192

15

42

40

2

32

6 ) 192

18

12

12

0

Here are the secret rules!

A NUMBER IS DIVISIBLE BY		
TWO	if the digit in the unit's place is 0, 2, 4, 6, or 8.	Check 192
THREE	if the sum of its digits is divisible by 3.	1 + 9 + 2 = 12
FOUR	if the last two digits are divisible by 4.	92 ÷ 4 = 23
FIVE	if it ends in 0 or 5.	192
SIX	if it's divisible by both 2 and 3.	divisible by both 2 and 3

Use the secret rules on these numbers!

256

375

50

440

80

126

111

97

36

27

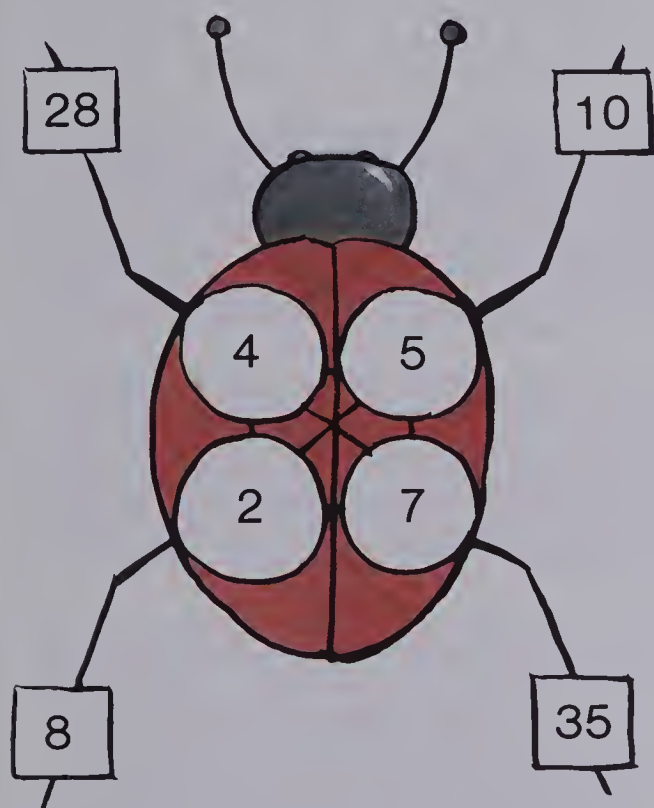
18

108

416

# Multiplication Bugs

CHALLENGE: Make the front legs equal to the back legs!



*Step 1* Choose any four numbers. Place them in the “body” of the bug (for example, 4, 5, 2, and 7).

*Step 2* Multiply down.  $4 \times 2 = 8$   
 $5 \times 7 = 35$

*Step 3* Multiply diagonally.  $7 \times 4 = 28$   
 $2 \times 5 = 10$

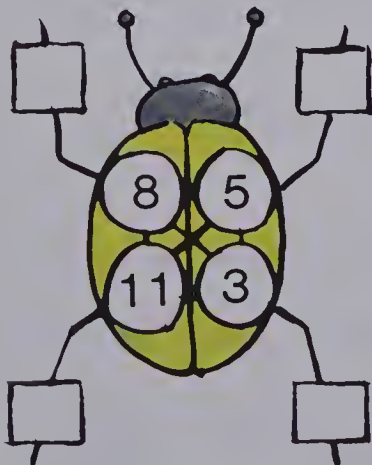
*Step 4* Multiply back legs.  $8 \times 35 = \blacksquare$

*Step 5* Multiply front legs.  $28 \times 10 = \blacksquare$

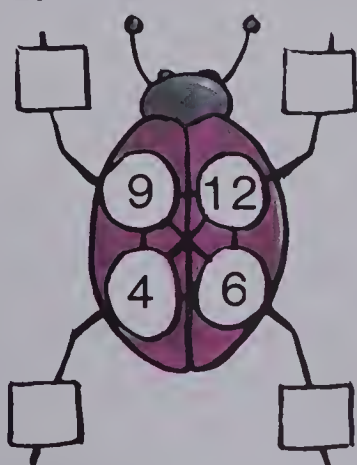
Did you meet the challenge?

Try these multiplication bugs!

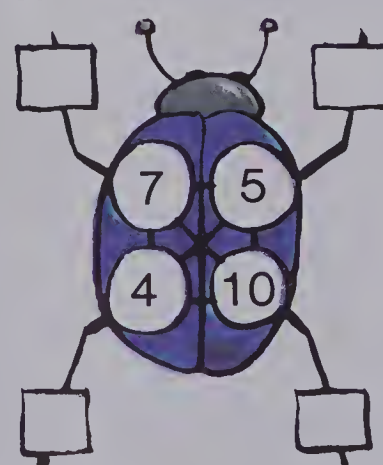
1.



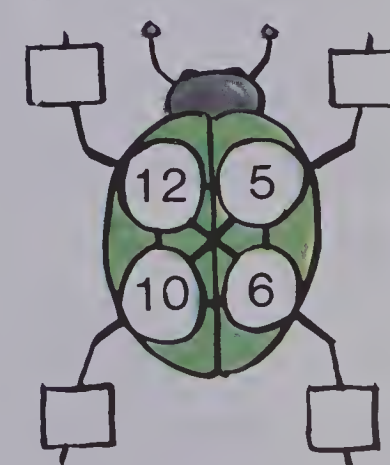
2.



3.

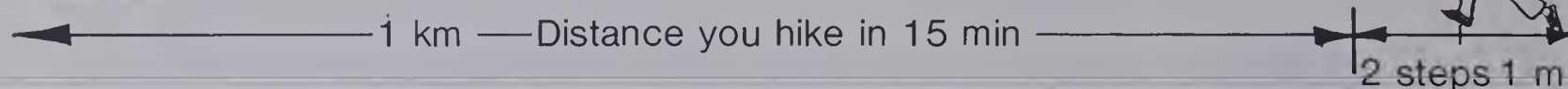
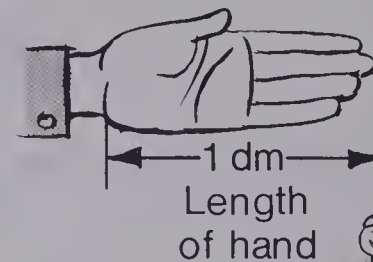
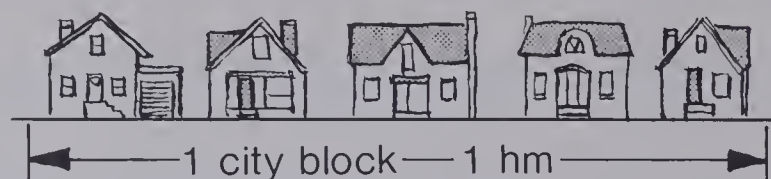
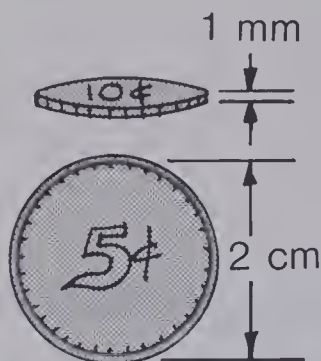


4.



Make your own multiplication bugs!

# Units of Length



## Exercises

Match.

1. millimetre

2. centimetre

3. decimetre

4. metre

5. decametre

6. hectometre

7. kilometre

(a) a little more than the thickness of your pencil

(b) about 1 city block

(c) length of two steps

(d) size of a marble

(e) a little less than your height

(f) about the width of your classroom

(g) about how far you walk in 15 min

(h) about the length of your hand

(i) thickness of a dime

Name the unit you would use to measure each. Choose from: millimetre, centimetre, metre, kilometre.

8. width of home plate

9. length of a baseball bat

10. from home plate to first base

11. height of a baseball player

12. how far you travelled in a car to a ball game

13. thickness of leather on baseball glove





# Area

Trace and cut out 12 of these squares.

Cover each shape with your square units.

Record the number of squares used for each.

The area of each is the number of square units used.

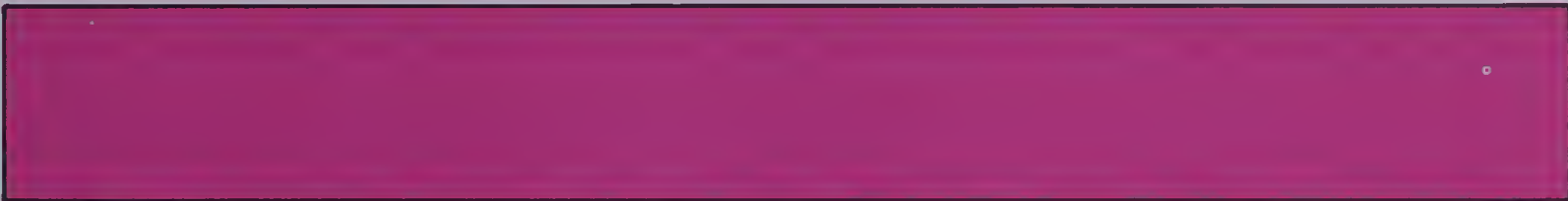


Area is ■ squares.

1.



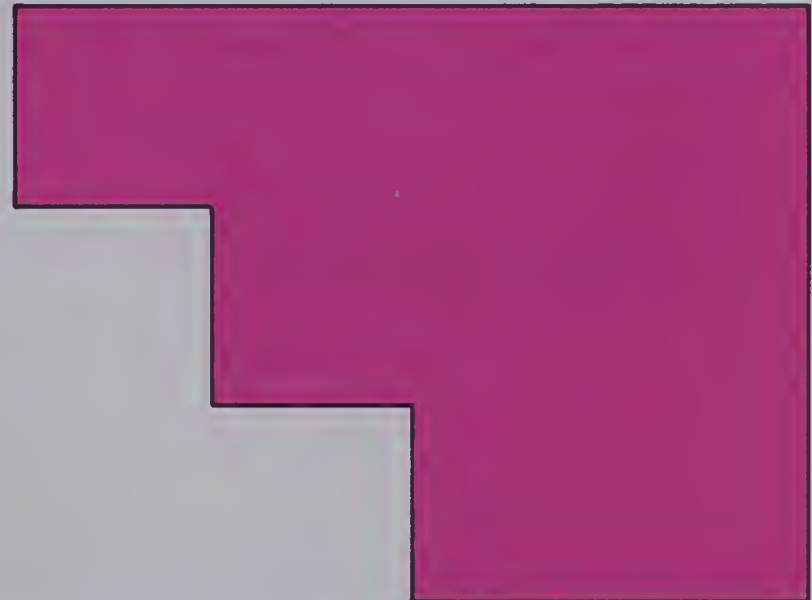
2.



3.



4.



5. Make a rectangle using all 12 squares.  
Record the number of units long and wide.  
How many *different* rectangles can you make  
using all 12 squares?  
Is the area of all the rectangles the same?

Here is one:



3 wide, 4 long

# The Square Centimetre



One square centimetre  
 $1 \text{ cm}^2$



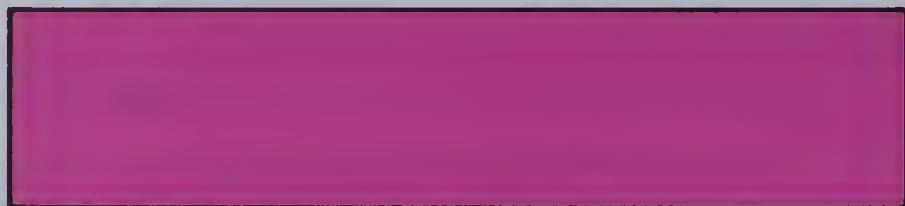
One half square centimetre  
 $0.5 \text{ cm}^2$

**A square centimetre** is a unit used to measure area.

## Exercises

Use square centimetres. Cover each shape. Record the area of each.

1.



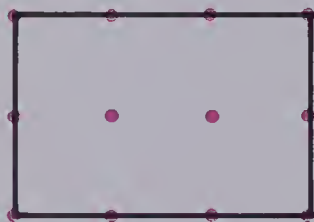
Area is ■ square centimetres.

2.

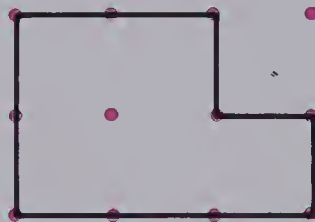


These shapes were made on a geo-board. What is the area of each?

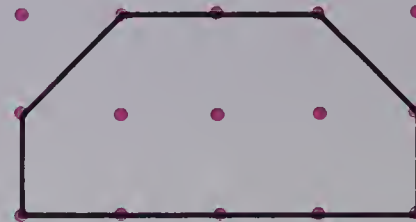
3.



4.

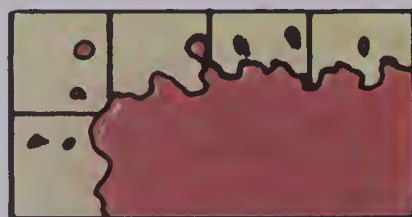


5.

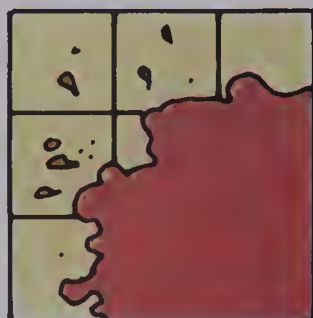


John spilled paint on his rectangles. Find the area of each rectangle.

6.



7.



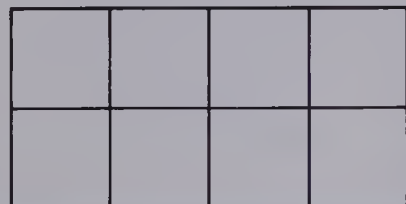
8.



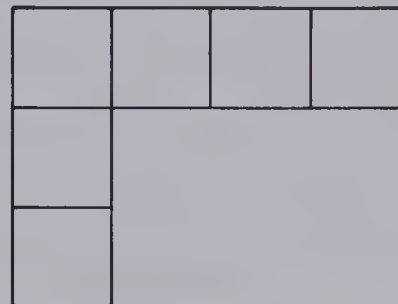
# Short Cut to Area



1 row —  $4 \text{ cm}^2$



2 rows  
 $4 \times 2$   
 $8 \text{ cm}^2$

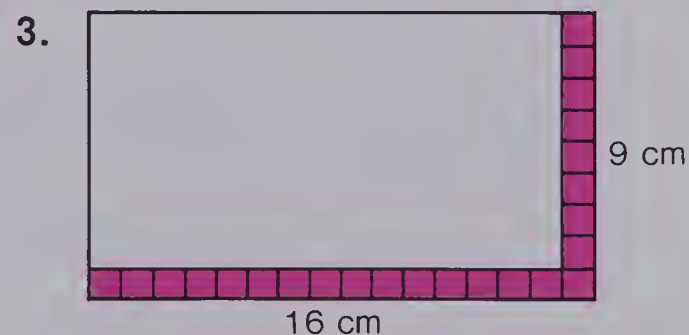
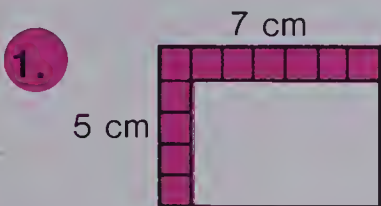


3 rows  
 $4 \times 3$   
 $12 \text{ cm}^2$

Area of a rectangle: number of squares in 1 row multiplied by number of rows.

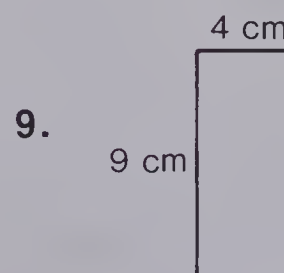
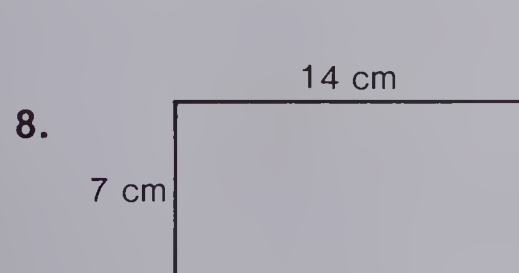
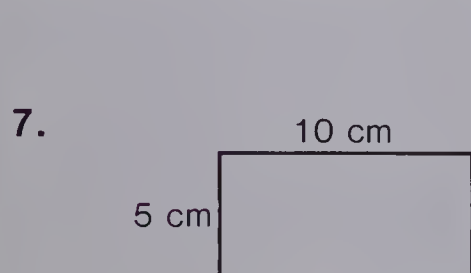
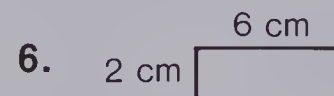
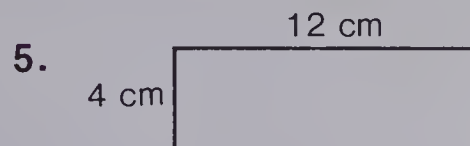
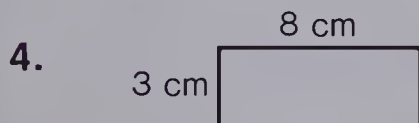
## Exercises

Calculate the area of each rectangle.



We do not need to show the squares in one row. For each

- (a) how many centimetre squares in one row?  
(b) how many rows? (c) what is the area?





# Tiles, Tiles, Tiles

Marty's parents were remodelling the rumpus room.  
They put square tiles of different kinds in different places.

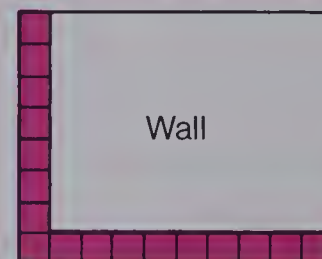
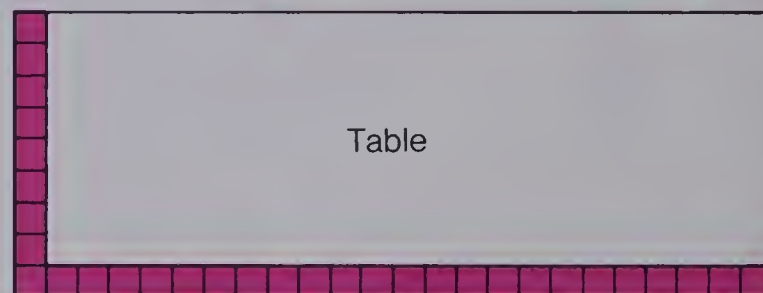
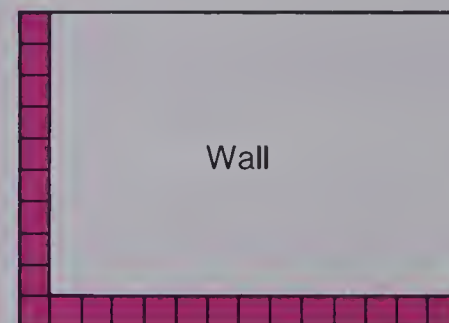
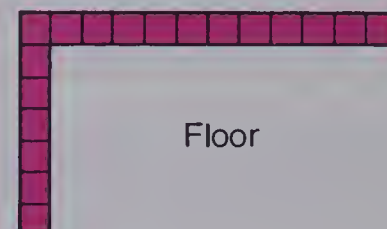
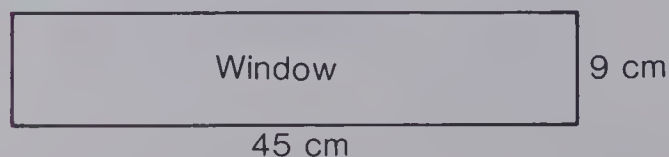
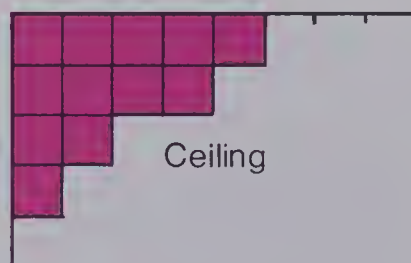
1. His Mother placed squares along one side of the rumpus room floor.

His Father put tiles along the other side.  
How many tiles are necessary to cover the floor?

2. Marty's Father placed tiles on the bathroom wall as shown.  
How many tiles are needed to cover the wall?

3. Marty's Mother put ceramic tiles on the coffee table.  
How many tiles were needed to cover the table?

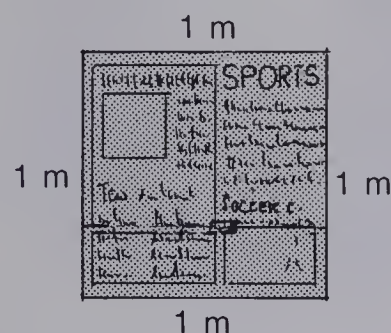
4. Square wood tiles were placed on one wall.  
How many tiles were needed?



- ★ 5. The ceiling was partly tiled.  
How many more tiles are needed?
- ★ 6. A small window needs new glass.  
How many square centimetres of glass are needed?

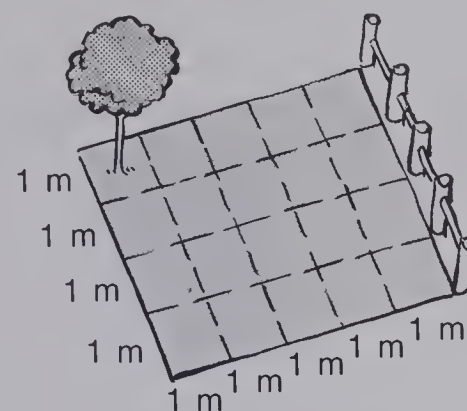
# The Square Metre

The **square metre** is a unit used to measure larger areas.



One square  
metre  
 $1 \text{ m}^2$

Use newspapers to make a square metre.



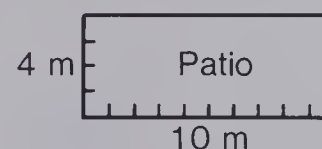
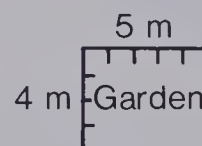
Lawn areas are measured in square metres.

## Exercises

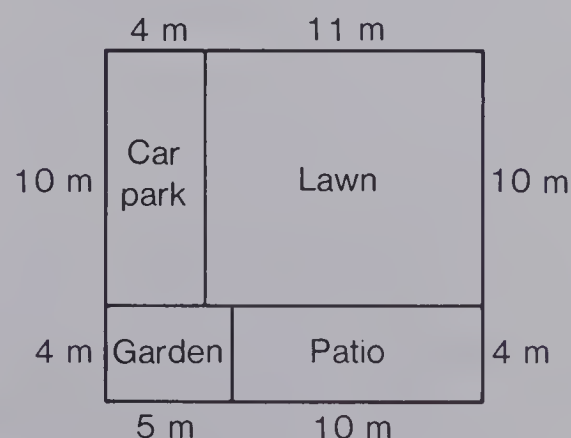
1. Use your square metres to measure the space in the hall outside your classroom.

Eileen and her parents planned the backyard of their new home.

2. Eileen wanted a small garden.  
She measured the rectangular space shown.  
How many square metres in one row?  
How many rows of square metres?  
How many square metres in the garden?



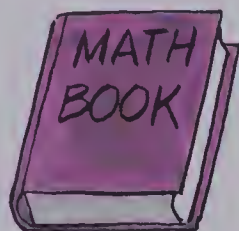
3. Eileen's Mother measured the patio.  
How many square metres in the patio?
4. The lawn is 10 m wide and 11 m long.  
What is the area of the lawn?
5. Eileen's Father paved the car park area.  
How many square metres of paving?



# Estimating Area

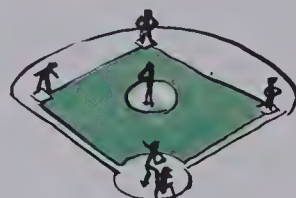
Choose the best area.

1.



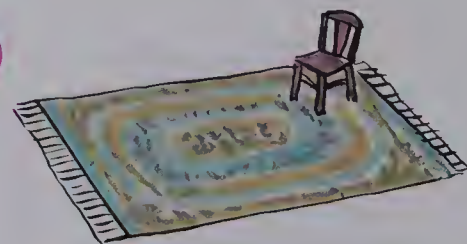
- (a)  $400 \text{ cm}^2$
- (b)  $400 \text{ m}^2$
- (c)  $40 \text{ cm}^2$

2.



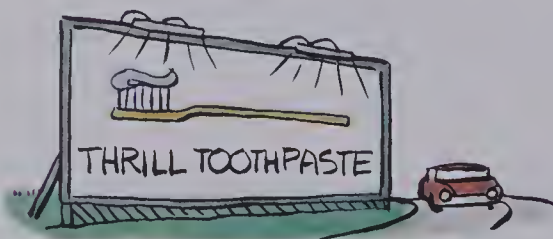
- (a)  $400 \text{ cm}^2$
- (b)  $400 \text{ m}^2$
- (c)  $4 \text{ m}^2$

3.



- (a)  $12 \text{ cm}^2$
- (b)  $12 \text{ m}^2$
- (c)  $1 \text{ m}^2$

4.



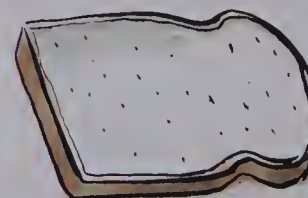
- (a)  $30 \text{ cm}^2$
- (b)  $30 \text{ m}^2$
- (c)  $3 \text{ m}^2$

5.



- (a)  $8 \text{ cm}^2$
- (b)  $80 \text{ cm}^2$
- (c)  $800 \text{ cm}^2$

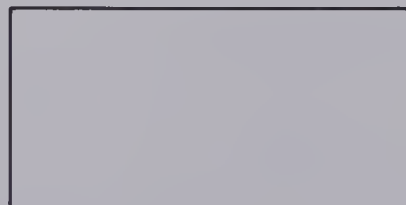
6.



- (a)  $12 \text{ cm}^2$
- (b)  $120 \text{ cm}^2$
- (c)  $1200 \text{ cm}^2$

Estimate the area of each shape in square centimetres.

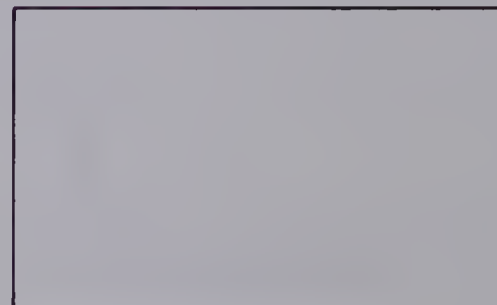
7.



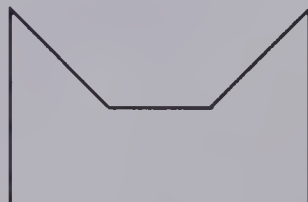
8.



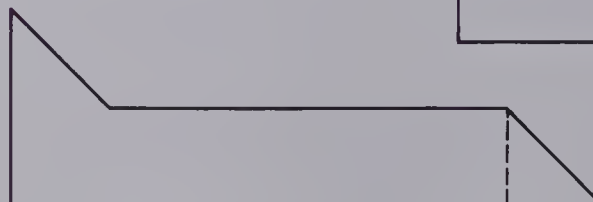
9.



10.



11.



- ★12. Guess the area in square metres of the floor of your classroom.  
Use your newspaper square metres to check your guess.



# Tri-Wheels



What is the product of this tri-wheel?

$$\begin{aligned} & 7 \times 12 \times 4 \\ & = 84 \times 4 \\ & = 336 \end{aligned}$$

## Exercises

Find the products for these tri-wheels.

1.



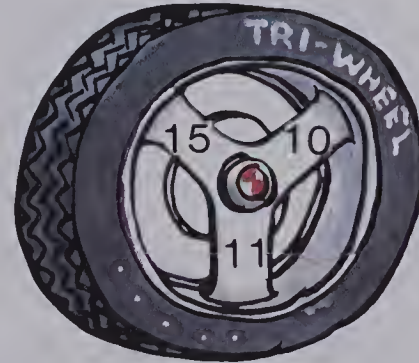
$$6 \times 9 \times 4$$

2.



$$12 \times 3 \times \blacksquare$$

3.



$$15 \times \blacksquare \times \blacksquare$$

Find the products.

4.

$$7 \times 15 \times 12$$

7.

$$3 \times 9 \times 7$$

10.

$$9 \times 25 \times 10$$

13.

$$8 \times 10 \times 12$$

16.

$$14 \times 17 \times 21$$

19.

$$24 \times 22 \times 28$$

5.

$$8 \times 13 \times 20$$

8.

$$24 \times 15 \times 17$$

11.

$$5 \times 5 \times 30$$

14.

$$26 \times 4 \times 18$$

17.

$$11 \times 25 \times 19$$

20.

$$17 \times 11 \times 26$$

6.

$$18 \times 25 \times 10$$

9.

$$19 \times 5 \times 23$$

12.

$$14 \times 15 \times 16$$

15.

$$10 \times 20 \times 30$$

18.

$$20 \times 30 \times 40$$

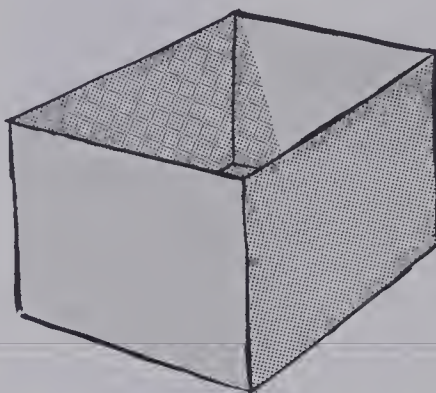
21.

$$15 \times 10 \times 20$$

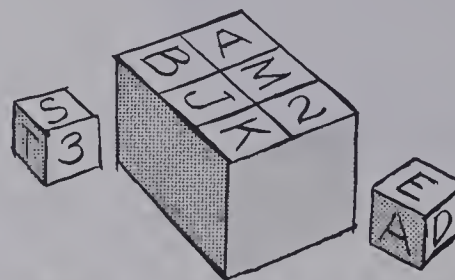
Make your own tri-wheels and exchange with a friend.

# Volume

The amount of space inside this box is the **volume** of the box.



Jamey placed his little brother's blocks inside a box. Each block is 1 **cubic unit**.



The *volume* of the box is 12 *cubic units*.

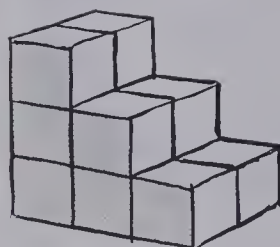
## Exercises

How many cubic units in each?

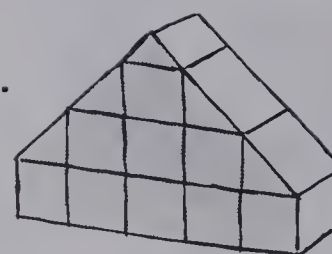
1.



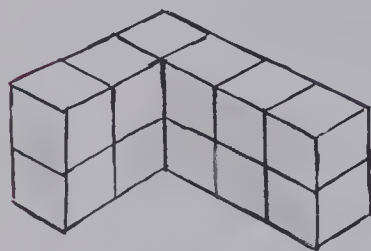
2.



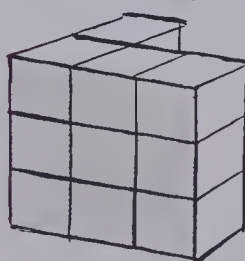
3.



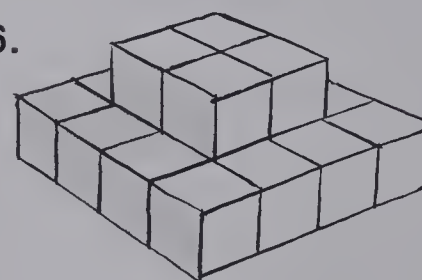
4.



5.

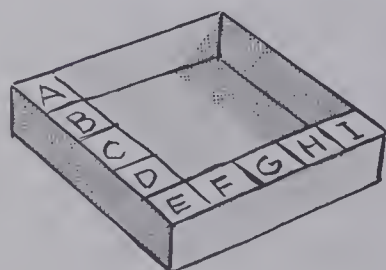


6.

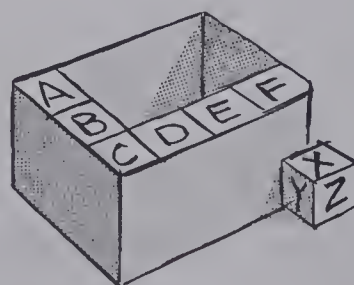


Shelly didn't have enough blocks to fill each box. How many blocks will each box hold?

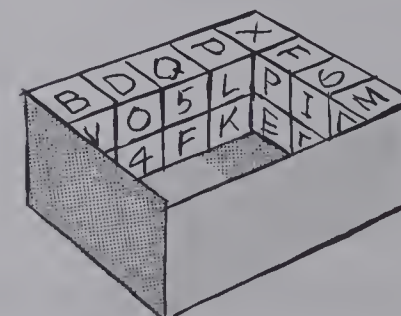
7.



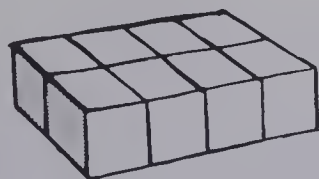
8.



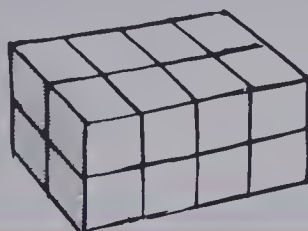
9.



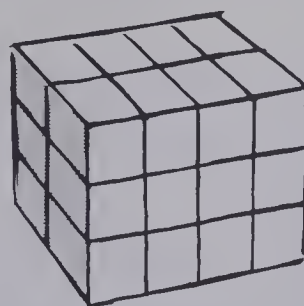
# Short Cut to Volume



1 layer  
8 cubic units



2 layers  
 $8 \times 2$   
16 cubic units

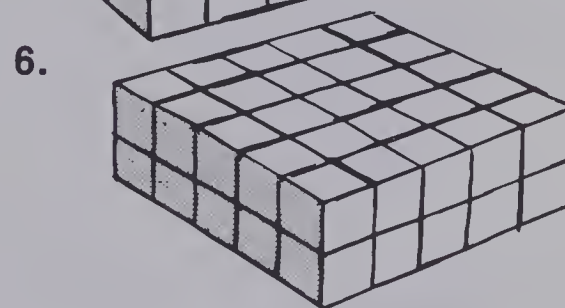
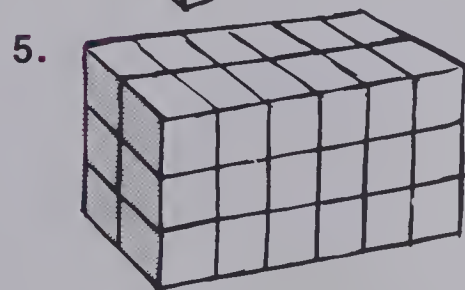
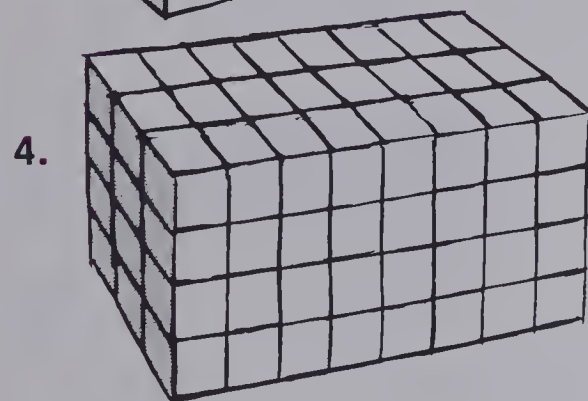
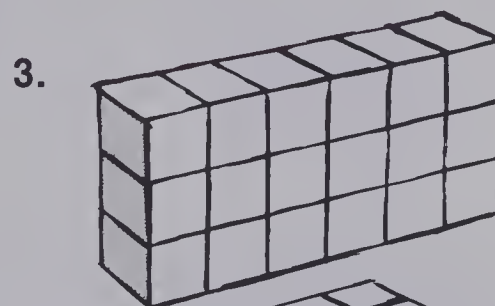
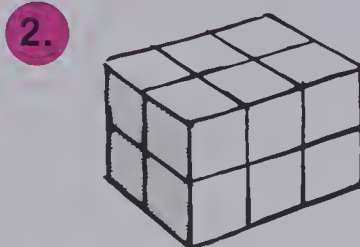
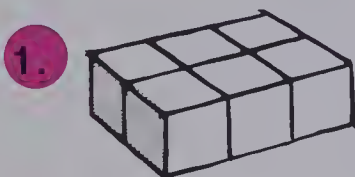


3 layers  
 $8 \times 3$   
24 cubic units

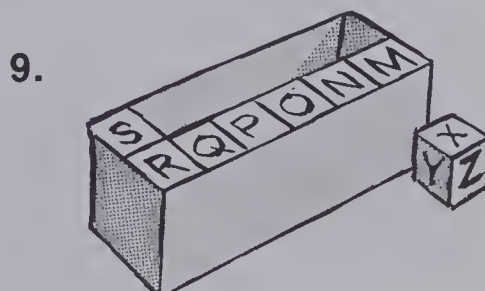
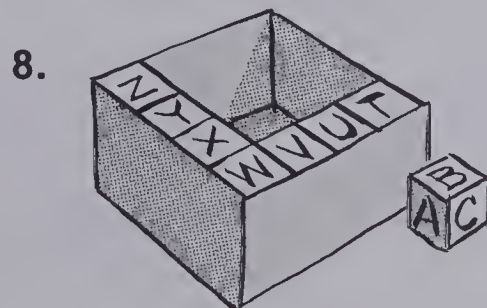
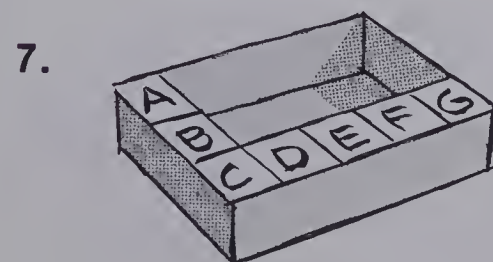
Volume: number of cubic units in 1 layer multiplied by number of layers.

## Exercises

Calculate the number of cubic units in each rectangular prism.

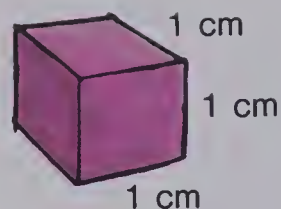


Robbie used blocks to find the volume of boxes. He didn't have enough to fill the boxes. How many cubic units will each box hold?





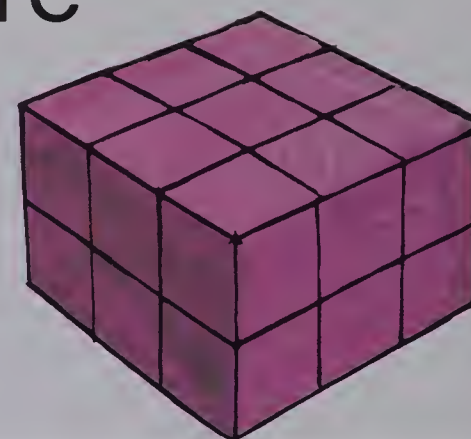
# The Cubic Centimetre



One cubic centimetre  
 $1 \text{ cm}^3$

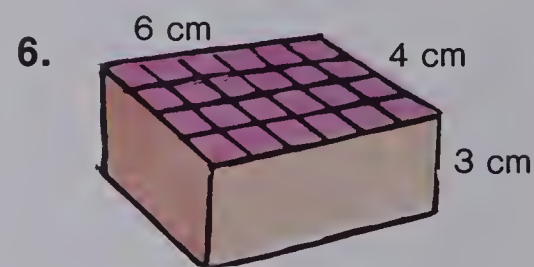
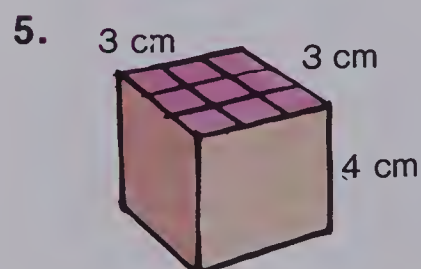
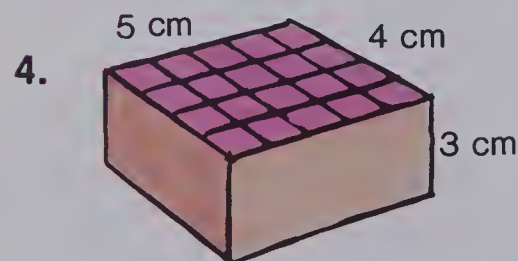
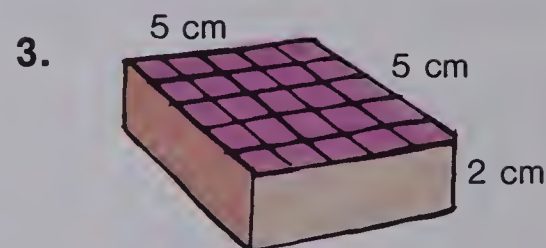
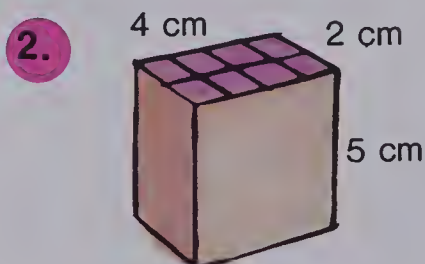
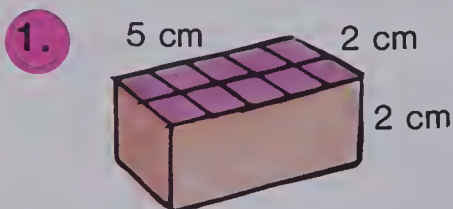
The **cubic centimetre** is often used as a unit to measure volume.

Joan used 18 centimetre cubes to make this block.



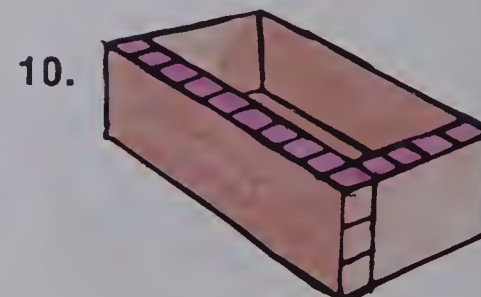
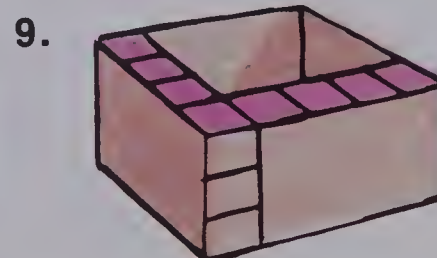
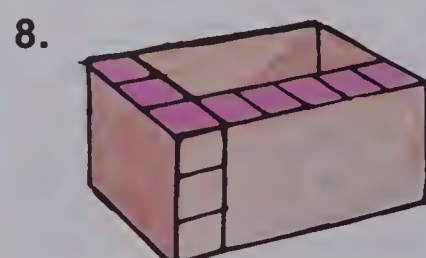
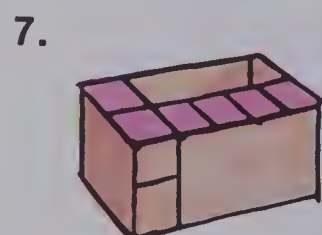
## Exercises

- Find the number of cubic centimetres in one layer of each box.
- Find the number of cubic centimetres in each box.



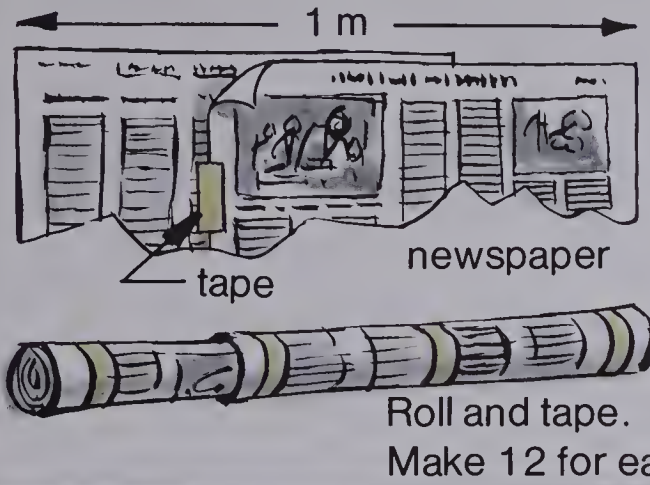
For each

- find the number of cubic centimetres in one layer.
- find the number of cubic centimetres in the box.

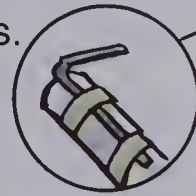


# The Cubic Metre

Make a **cubic metre**.



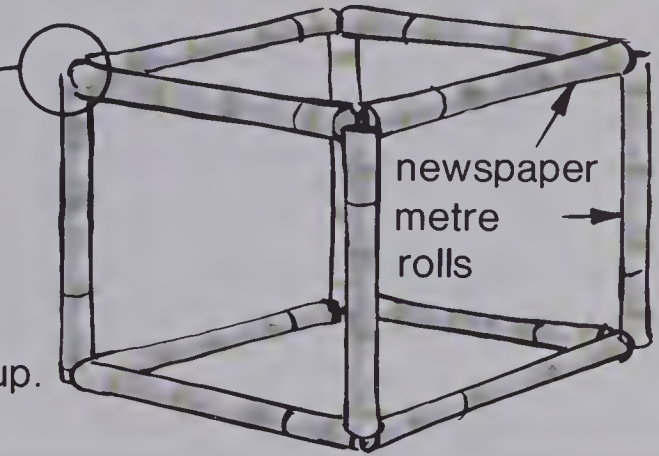
Tape wire  
to corners.



Make 16 square  
corners from  
wire for each group.



A cubic metre  
 $1 \text{ m}^3$

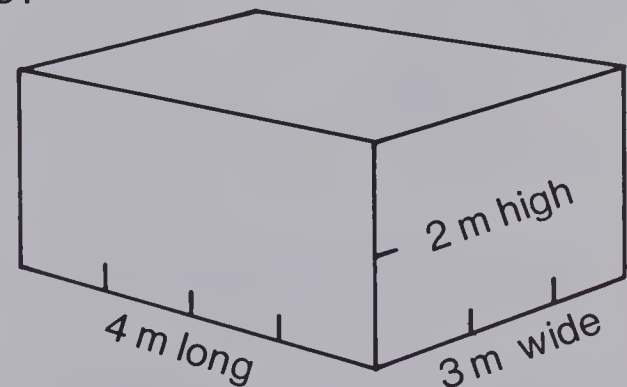


## Exercises

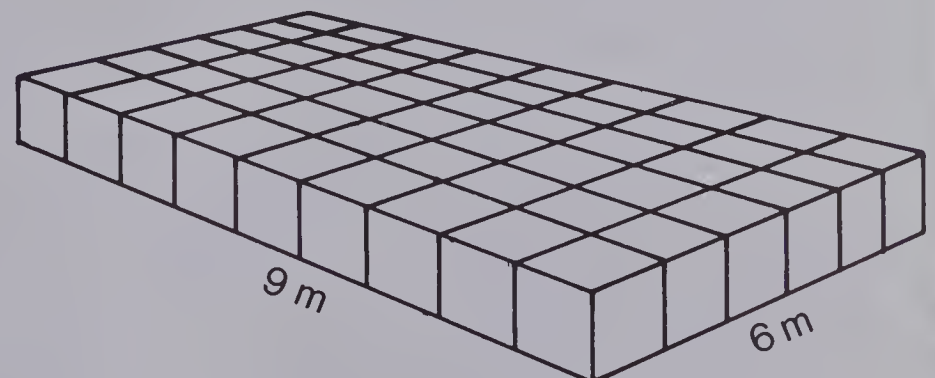
1. How many students can stand inside the cubic metre?
2. What is the length of each side of the cubic metre?
3. Will your desk fit inside the cubic metre?
4. Will the teacher's desk fit inside the cubic metre?

Mark measured his bedroom.

5. How many cubic metres could be put in one layer in his room?
6. How many layers of cubic metres could he get in his room?
7. What is the number of cubic metres of space in his room?

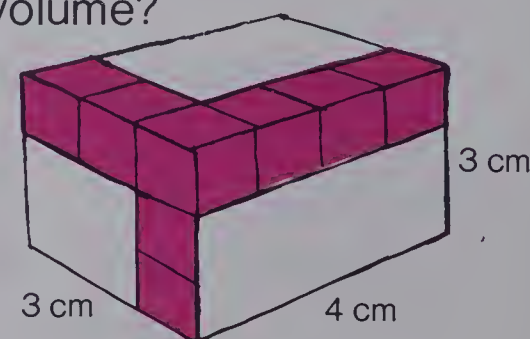
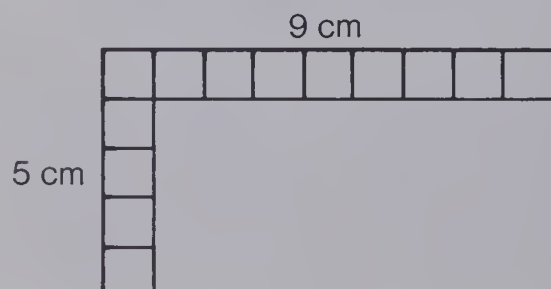


8. Ann measured her classroom.  
The length is 9 m.  
The width is 6 m.  
How many cubic metres could be put in one layer on the floor?



# Chapter Test

- Tell what each underlined number means. (a) 2354 (b) 25 741
- Find the missing numbers.  
(a)  $6 \times n = 24$  (b)  $n \times 4 = 20$  (c)  $27 \div 3 = n$  (d)  $n \div 8 = 16$
- Multiply.  
(a)  $180 \times 10$  (b)  $18 \times 10$  (c)  $1.8 \times 10$  (d)  $0.5 \times 10$
- Multiply.  
(a)  $30 \times 6$  (b)  $50 \times 4$  (c)  $200 \times 9$  (d)  $600 \times 7$  (e)  $40 \times 7$   
(f)  $23 \times 10$  (g)  $45 \times 100$  (h)  $67 \times 1000$  (i)  $10 \times 1000$  (j)  $82 \times 100$
- Divide.  
(a)  $90 \div 10$  (b)  $700 \div 100$  (c)  $6000 \div 1000$  (d)  $27\,000 \div 1000$
- Multiply.  
(a)  $\begin{array}{r} 23 \\ \times 48 \\ \hline \end{array}$  (b)  $\begin{array}{r} 56 \\ \times 29 \\ \hline \end{array}$  (c)  $\begin{array}{r} 234 \\ \times 73 \\ \hline \end{array}$
- Divide.  
(a)  $3 \overline{)65}$  (b)  $4 \overline{)84}$  (c)  $2 \overline{)196}$   
(d)  $7 \overline{)917}$  (e)  $5 \overline{)342}$  (f)  $8 \overline{)691}$
- (a) Is 342 divisible by 2?  
(b) Is 615 divisible by 3?  
(c) Is 724 divisible by 4?
- 12  $\times$  10  $\times$  13
- 285 parcels in each mail truck.  
How many parcels in 5 mail trucks?
- What is the volume?





# Cumulative Review

Make each number sentence true.

1.  $\blacksquare + 12 = 36$

2.  $8 + \blacksquare < 15$

3.  $\blacksquare + 9 > 16$

4. Add.

$$\begin{array}{r} 3.1 \\ 9.3 \\ 7.4 \\ + 8.7 \\ \hline \end{array}$$

5. 396 red balloons at the fair.  
500 yellow balloons.  
How many more yellow balloons?

6. Name an object about (a) 1 mm long (b) 1 cm long (c) 1 km long.

7. Write these using Roman numerals. (a) 16 (b) 128 (c) 41 (d) 94

Multiply.

8.  $19 \times 0$

9.  $23 \times 1$

10.  $2 \times 800$

11.  $3000 \times 6$

Add.

12.

$$\begin{array}{r} 32.4 \\ + 14.7 \\ \hline \end{array}$$

13.

$$\begin{array}{r} \$35.15 \\ + 82.96 \\ \hline \end{array}$$

Subtract.

14.

$$\begin{array}{r} 52.6 \\ - 19.8 \\ \hline \end{array}$$

15.

$$\begin{array}{r} \$46.15 \\ - 22.89 \\ \hline \end{array}$$

Estimate the product by rounding the first factor to the nearest hundred.

16.  $623 \times 7$

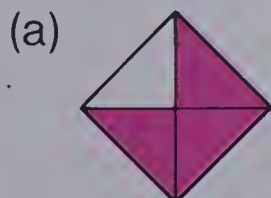
17.  $261 \times 8$

18.  $847 \times 4$

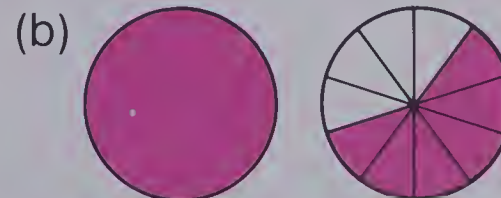
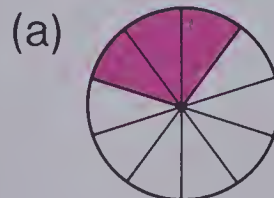
19.  $750 \times 9$

20. Identify each as an odd number or an even number. (a) 46 (b) 33 (c) 92

21. Write the fraction for the coloured part.



22. Write the decimal for the coloured part.



# Chapter 10

# Graphs and Measurement

Bar and Line Graphs

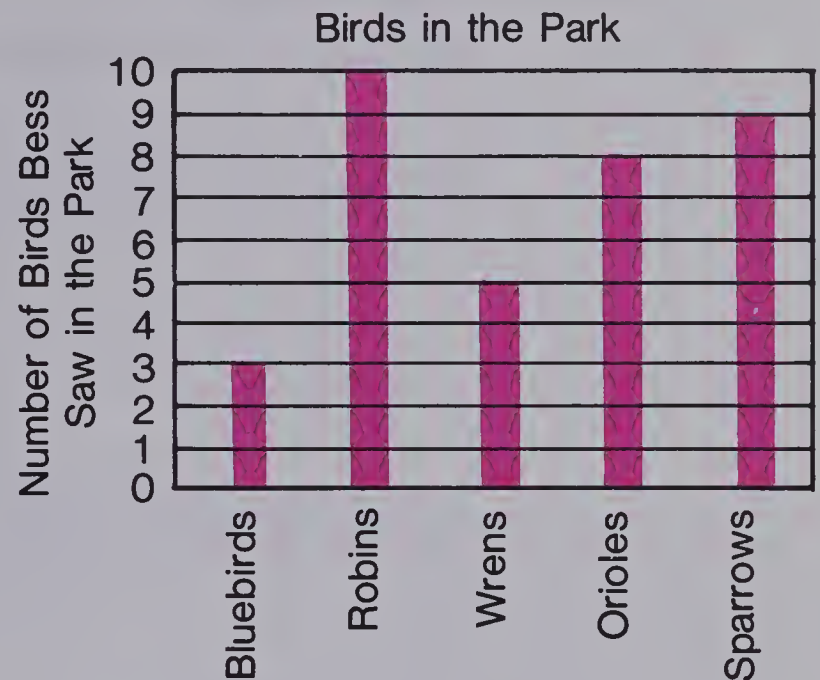
Temperature

Time

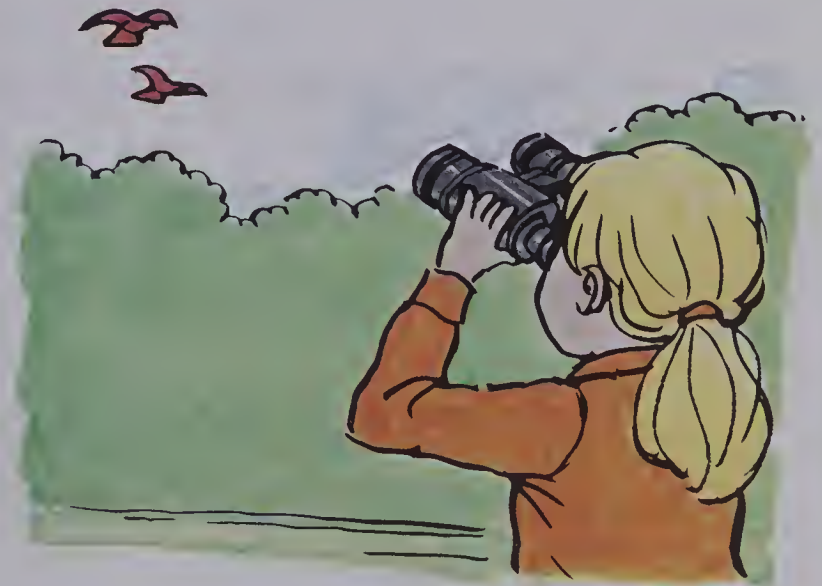


# Reading Bar Graphs

Bar graphs show information in a form that can be read easily and quickly. Answer the questions about each graph.

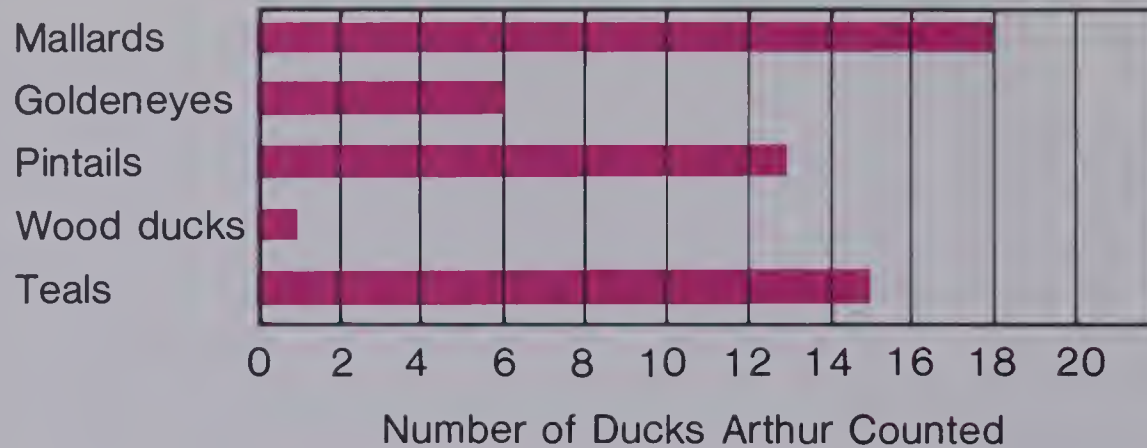


1. Which bird is most common in the park?
2. How many wrens did Bess see?
3. What birds did Bess see?
4. How many bluebirds and orioles did Bess see altogether?
5. How many more robins than sparrows did Bess see?
6. Bess said, "I saw twice as many of one bird as I did of another." Which two birds did she mean?
7. If Bess had seen six canaries, how would it be shown?

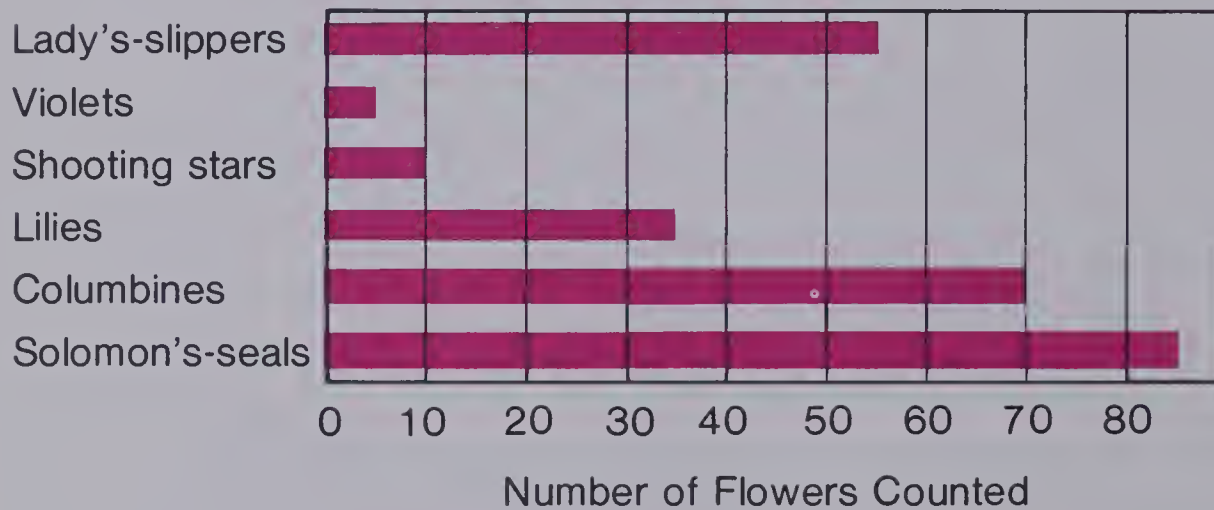




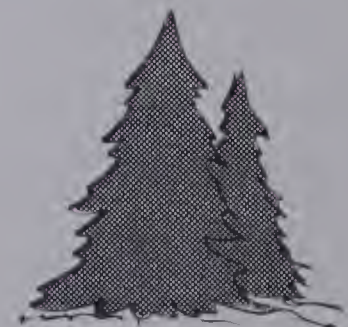
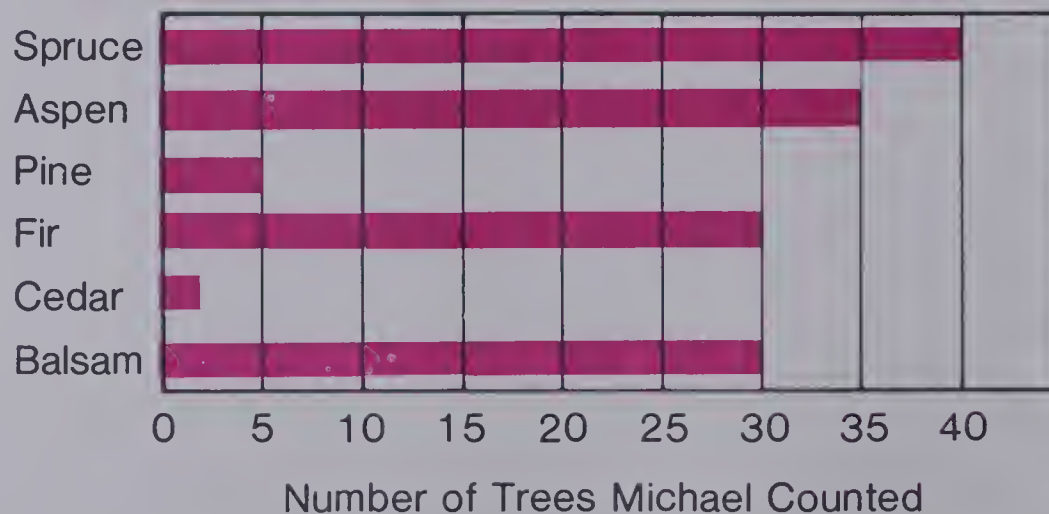
### Ducks in the Pond



### Flowers in Wildlife Park



### Trees in the Park



8. Which duck is most common in the pond?
9. Which duck is least common?
10. How many pintail ducks were seen?
11. How many more teals than wood ducks were seen?
12. Arthur said, "I saw three times as many of one duck as I did of another."  
Which two ducks did he mean?
13. If Arthur had seen nine widgeons, how would it be shown?

A class counted the number of flowers in Wildlife Park.

14. How many Solomon's-seals did the class count?
15. How many lilies did the class count?
16. How many more lady's-slippers were there than shooting stars?
17. How many times as many columbines as shooting stars were there?
18. If the class had counted 25 wild roses, how would it be shown?
19. If the class had counted 110 Indian paintbrushes, how would it be shown?

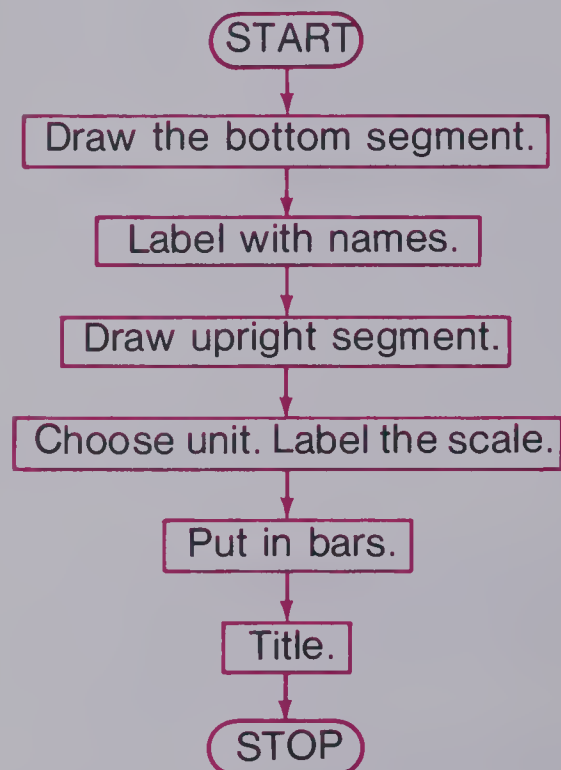
Michael counted the trees in the park.

20. What kind of tree is most common?
21. What tree is least common?
22. There were the same number of two kinds of trees. Which kinds of trees?
23. If 15 maples had been counted, how would this be shown?
24. If 32 larch had been counted, how would this be shown?

# Drawing Bar Graphs

1. A class was studying hawks in the park. Draw a bar graph to show the data in the chart.

Kind of Hawks	Number of Hawks Sighted in One Day
Redtail	13
Marsh	8
Cooper's	1
Harlan's	4
Goshawk	11



2. Make another graph using the information from Question 1. Use units of 2's in your scale.



3. The class recorded the number of dangerous plants in the community. Draw a graph to show the types and numbers of dangerous plants.

Plant	Number	Reason It's Dangerous
Poison Ivy	5	Causes painful rash.
Locoweed	15	Makes cattle wild.
Camas	40	Poisonous if eaten.
Nettle	55	Causes rash.
Monkshood	30	Seeds and stems are poisonous.



4. The class recorded the number of plants in a forest which can be eaten.
- (a) What unit will you use for the scale?
- (b) Draw the graph to show this information.

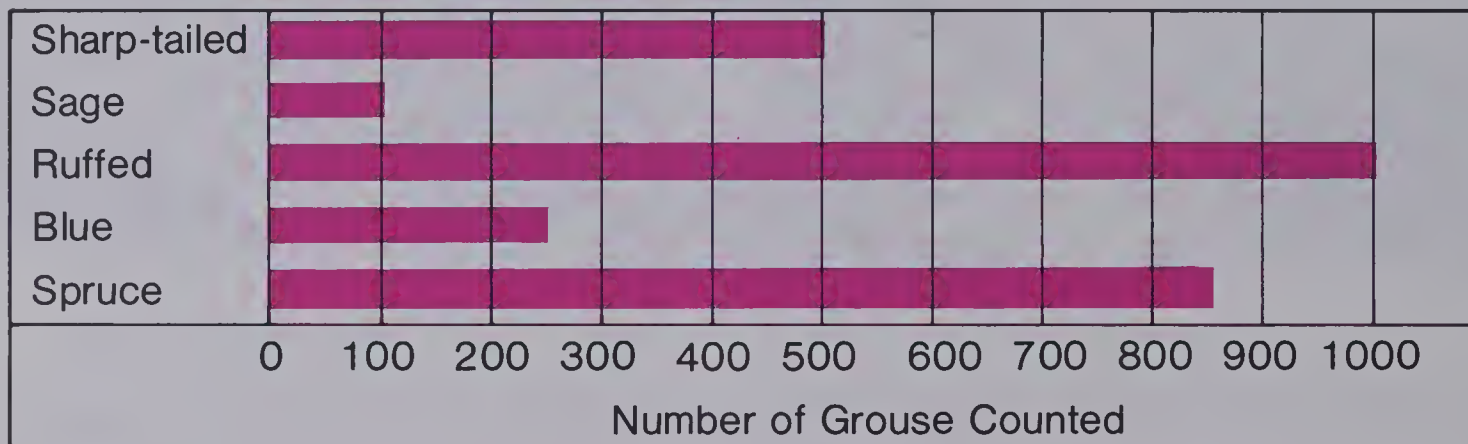
Plant	Number of Plants	Part To Be Eaten
Blueberries	90	Berries
Raspberries	95	Berries
Arrowheads	80	Tubers
Labrador Tea	70	Leaves
Milkweed	35	Pods
Cattails	100	Roots and stems peeled

# Reading Bar Graphs

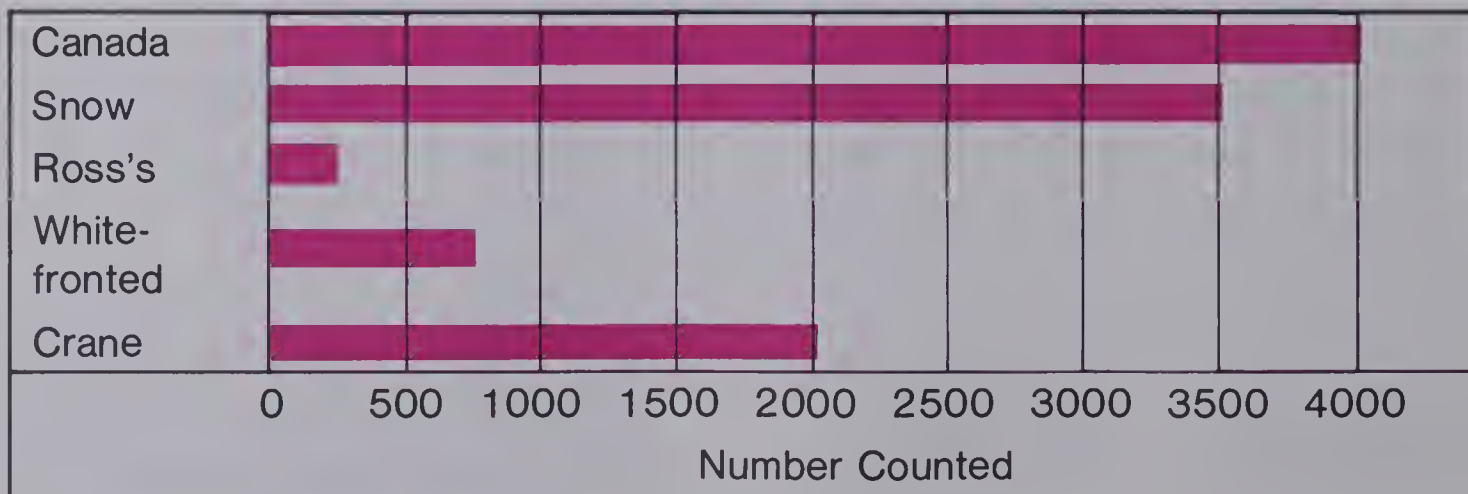
Gull Population in Zone 5



Grouse Population in Zone 5



Number of Geese Counted on Sept. 22 in Coronation Park



A forest ranger took a population count of birds in an area.  
Answer the questions about the number of gulls and grouse.

1. Which gull is least common?
2. Which two gulls had the same population?
3. How many mew gulls were counted?
4. How many ring-billed gulls were counted?
5. Which gull had a population count one half that of the Franklin's gulls?
6. If 225 Bonaparte's gulls had been counted, how would this be shown?
7. Which grouse is least common?
8. The ruffed grouse was four times as plentiful as which grouse?
9. How many sage grouse were there?
10. How many spruce grouse were there?
11. How many more sharp-tailed grouse than blue grouse were counted?
12. If 50 willow ptarmigan had been counted, how would this be shown?

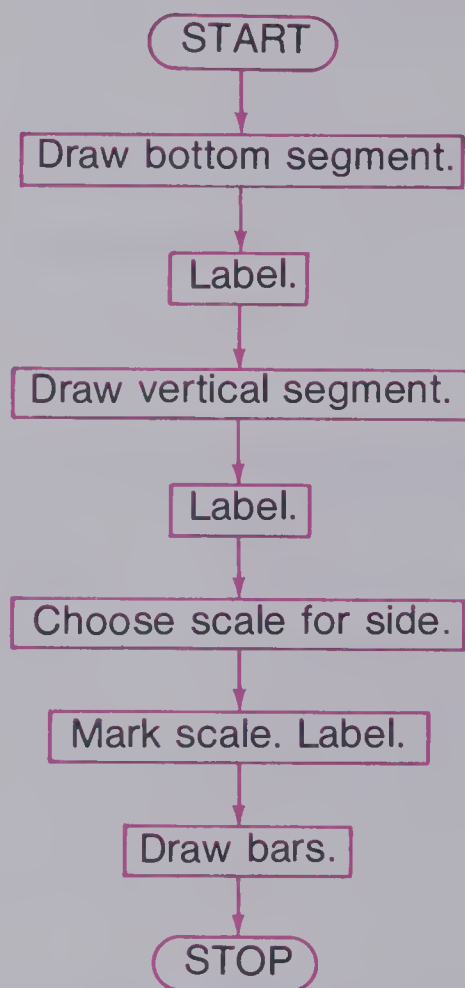
A population count of geese was taken in Coronation Park on September 22.

13. How many crane geese were counted?
14. How many Ross's geese were counted?
15. The geese were counted as they migrated south. If the same number were counted four days in a row, how many Canada geese would have been counted?
16. Which is the most common goose? the least common?



# Making More Bar Graphs

1. A population count of owls was taken. Draw a bar graph to show the information in the chart.



Type of Owl	Number
Snowy	150
Pygmy	75
Long-eared	300
Saw-whet	250
Burrowing	450



2. What number is halfway between these numbers?

(a) 50 and 100

(d) 450 and 500

(g) 700 and 800

(b) 100 and 200

(e) 750 and 800

(h) 200 and 300

(c) 500 and 1000

(f) 300 and 350

(i) 400 and 500

The following estimates were made of the number of birds in a bird sanctuary.  
Draw bar graphs to show the information. Label and title each graph.

3. Undesirable birds.



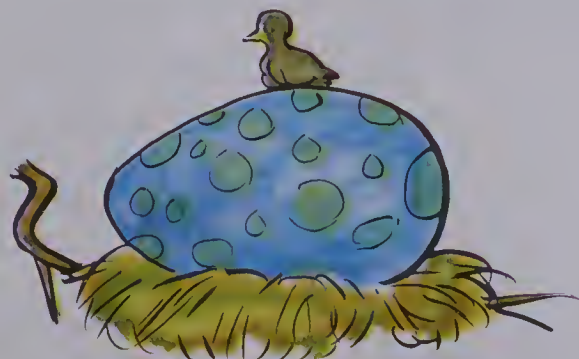
Name	Number
Starlings	900
Crows	250
Magpies	150
Cowbirds	700
Grackles	450

4. Colourful birds.



Name	Number
Orioles	4000
Grosbeaks	1500
Warblers	250
Waxwings	250
Flycatchers	2500

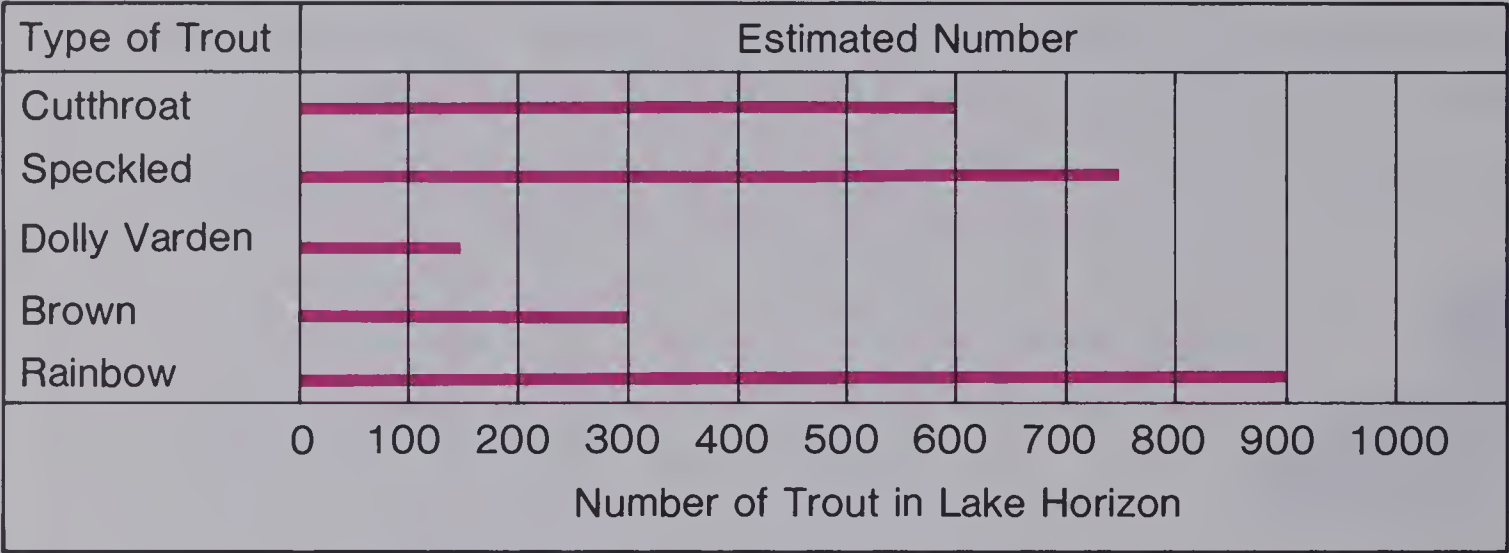
5. Small birds.



Name	Number	Size
Hummingbirds	250	7 cm
Wrens	4500	9 cm
Chickadees	3000	7.5 cm
Kinglets	3500	10 cm
Vireos	2250	12 cm
Warblers	500	11 cm

# Line Graphs

Line segments are sometimes used in place of bars in graphs. The number of trout in Lake Horizon was estimated.



1. How is the number of cutthroat trout shown?
2. How many speckled trout are estimated to be in Lake Horizon?
3. How does this graph differ from those on Pages 281 and 282?

Draw line segment graphs to show the information.

4. Number of people registered for an overnight hike to Cascade Falls during the summer months.

Month	Number of Hikers Registered
June	250
July	700
August	900
September	450
October	100

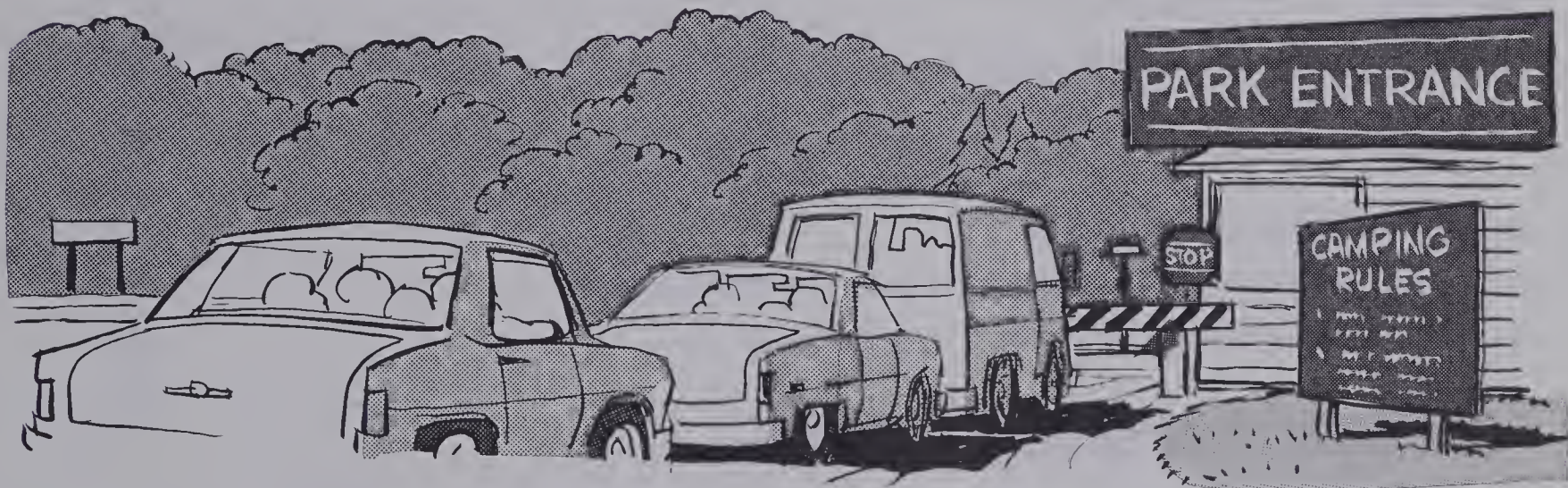


5. The number of people that visited the park from July 10 to July 15.

Day	Number of Visitors
July 10	500
July 11	750
July 12	1500
July 13	4500
July 14	3000
July 15	1250

6. A national park recorded the number of cars that entered the park during certain months.

Month	Number of Cars
January	1500
April	3000
July	5000
September	3000
November	2500



7. The trails in the park were listed with the times normally required to make a one-way trip.

Name of Trail	Time in Minutes
Peyto Lake	90
Red Earth Creek	120
Bow Summit	30
Cirque Lake	180
Three Glaciers	240

- (a) Why do you think the unit of 60's or 30's would be used?
- (b) Make a graph for the information.

★(c) Make a second graph for the number of hours for a round-trip hike on the trails listed. What unit will you use?

# Temperature

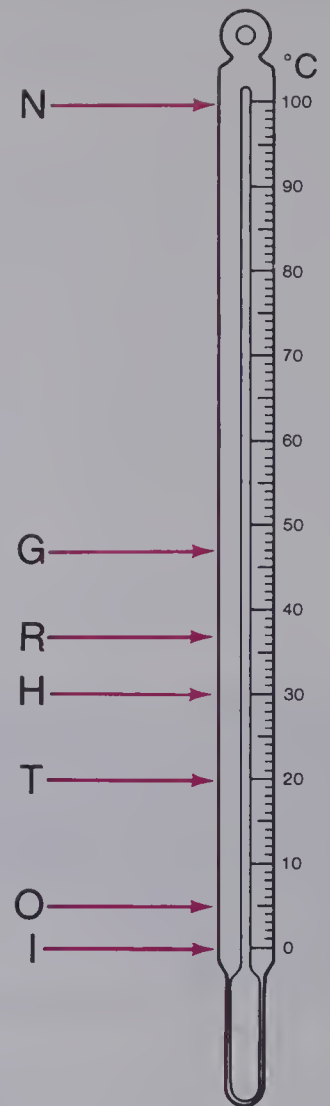
Find each temperature on the thermometer.

1. highest temperature recorded in Canada
2. cold summer day
3. normal body temperature
4. room temperature
5. temperature of freezing water
6. temperature of boiling water
7. hot summer day

Copy the blanks and numbers.

Place the letters from the thermometer in the blanks.

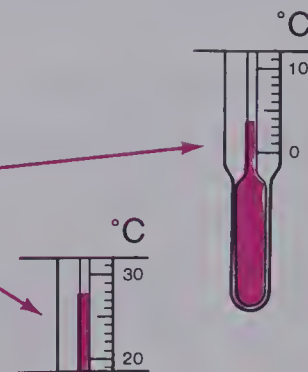
You will know when you are correct.



8. On a warm winter day the temperature was

On a warm summer day the temperature was

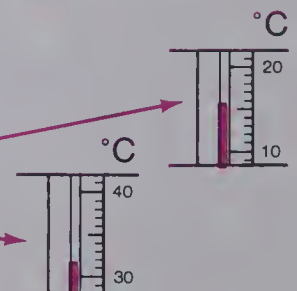
How many degrees warmer was it on the summer day than the winter day?



9. When Garcia got up in the morning the thermometer was

When he had lunch the thermometer was

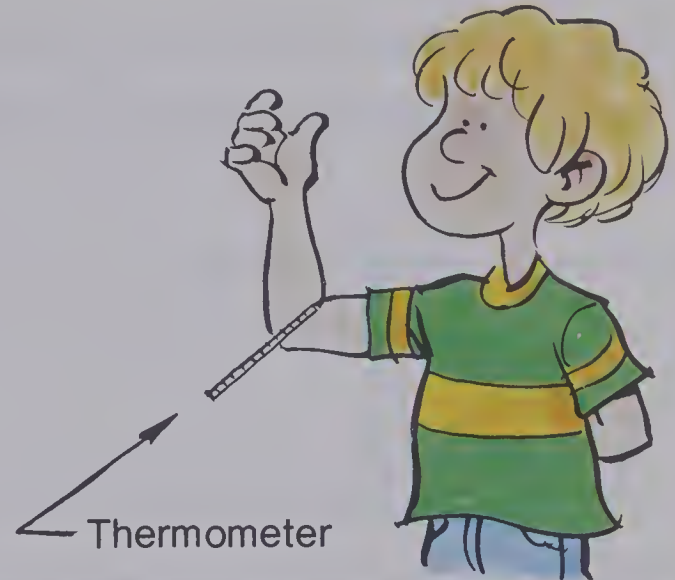
How many degrees did the temperature go up?



# Guessing Temperature

Think about each. Guess what the temperature is.  
Record your guess. Use a thermometer to check.

1. temperature in your room
2. temperature of tap water
3. temperature of glass of water with ice cube
4. temperature of inside your elbow
5. temperature outside



## Tune Up

Add.

$$\begin{array}{r} 1. \ 34.3 \\ + \ 4.7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \ 35.9 \\ + \ 2.3 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \ 46.3 \\ + \ 8.8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \ 36.2 \\ + \ 2.8 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \ 35.6 \\ + \ 3.2 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 6. \ 38.3 \\ - \ 3.6 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \ 36.4 \\ - \ 1.9 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \ 41.1 \\ - \ 3.4 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \ 40.0 \\ - \ 4.9 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \ 36.0 \\ - \ 0.9 \\ \hline \end{array}$$

Add or subtract.

$$\begin{array}{r} 11. \ 34.3 \\ + \ 21.2 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \ 28.4 \\ + \ 26.9 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \ 36.4 \\ - \ 21.9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \ 51.8 \\ - \ 29.9 \\ \hline \end{array}$$

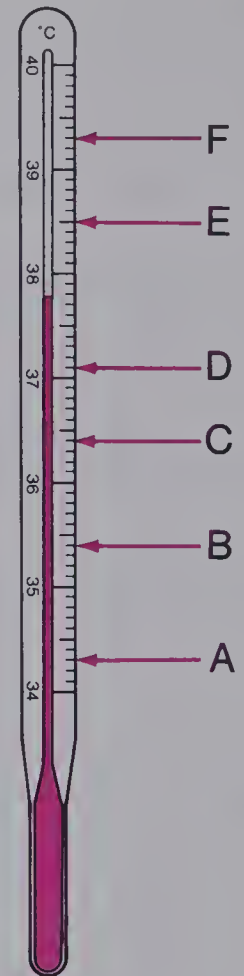
$$\begin{array}{r} 15. \ 80.1 \\ - \ 43.2 \\ \hline \end{array}$$



# Clinical Thermometer

Tom's Mother uses a clinical thermometer to take Tom's temperature. Note the scale shows tenths of a degree.

The temperature shown is  $37.8^{\circ}\text{C}$ .



## Exercises

Refer to the thermometer in the display.

1. What is the lowest temperature shown?  
the highest?
2. How many degrees of temperature change can be shown by this thermometer?
3. Tom's temperature is shown in the display.  
It is  $0.8^{\circ}\text{C}$  above his normal temperature.  
What is his normal temperature?
4. What would be the temperature at each of the points shown?

A      B      C      D      E      F

How many degrees does the temperature rise in going from:

- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| 5. A to B?  | 6. A to C?  | 7. A to D?  | 8. B to F?  |
| 9. C to E?  | 10. B to D? | 11. A to F? | 12. C to D? |
| 13. B to C? | 14. D to E? | 15. A to E? | 16. B to E? |

17. What portion of a degree does each mark on the scale represent?
18. What is the normal body temperature?
19. Can the thermometer be used to measure the temperature of a comfortable room? Why?

20. Tom's temperature reached a high of  $39.1^{\circ}\text{C}$ .

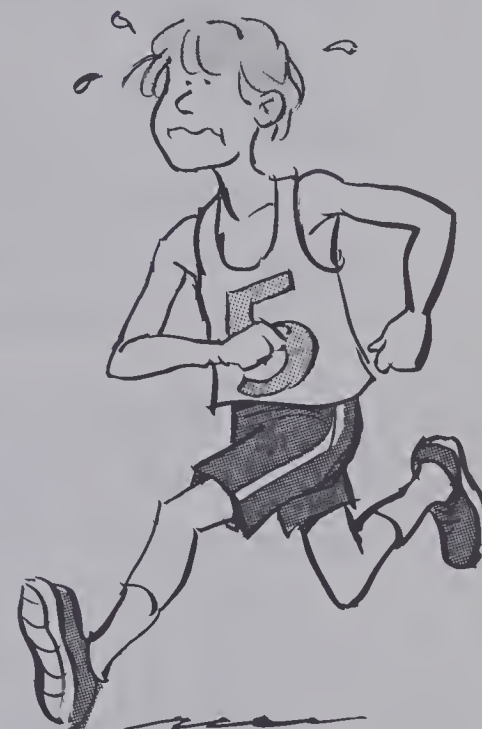
He was very sick.

It dropped  $1.8^{\circ}\text{C}$ .

What is his temperature now?

Is his temperature back to normal?

21. When Tom's temperature returned to normal, he said,  
"My temperature has dropped  $2.3^{\circ}\text{C}$ ."  
What was his temperature before the drop?



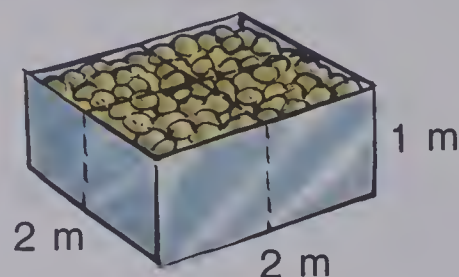
22. A marathon runner in hot weather had a body temperature of  $40.3^{\circ}\text{C}$ .  
How much is this above the normal body temperature?
23. It is reported that a seriously ill woman had a low temperature of  $16.0^{\circ}\text{C}$ .  
How much is this below normal?
24. Some birds have a very high body temperature.  
One bird, the swift, has a normal temperature of  $44.7^{\circ}\text{C}$ .  
How much higher is this than a person's normal temperature?
25. The spiny anteater of Australia has a normal body temperature of  $23.3^{\circ}\text{C}$ .  
How much less is this than the normal temperature of a person?

# Picking Potatoes

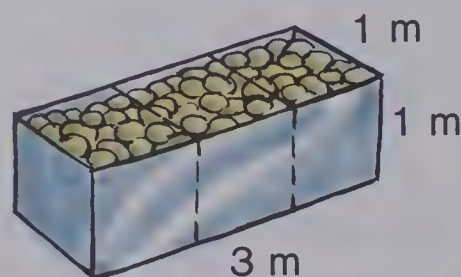
Carrie and Susan picked potatoes for their Father.

They received \$3.25 for each cubic metre of potatoes picked.

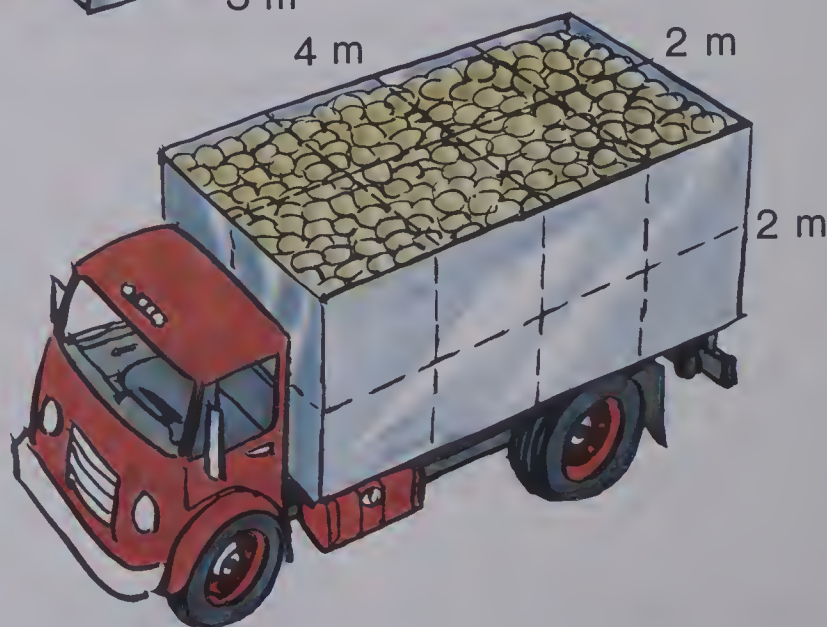
1. Carrie filled this box with potatoes in two days.
  - (a) How many cubic metres of potatoes did he pick?
  - (b) How much money would he get for the two days of work?



2. Susan filled this box by working Monday and Tuesday.
  - (a) How many cubic metres of potatoes did she pick?
  - (b) How much money would she get for the two days of work?



3. The hired help filled this truck box.
  - (a) How many cubic metres of potatoes are in the load?
  - (b) Potatoes sell for about \$81 for each cubic metre. How much is the load worth?



- ★ 4. Carrie and Susan's Father bought a canvas tarp to cover the potatoes in the truck box. The canvas is 1 m longer and 1 m wider than the box.
  - (a) How many square metres of canvas are necessary?
  - (b) The canvas cost \$9.56/m<sup>2</sup>.  
How much did the canvas cost?



# Tune Up

Add.

$$\begin{array}{r} 1. \quad 341 \\ + 247 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 451 \\ + 516 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 294 \\ + 789 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 633 \\ + 286 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 765 \\ + 406 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 7 \\ 8 \\ 4 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 7 \\ 3 \\ 5 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 14 \\ 23 \\ 16 \\ + 47 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 21 \\ 23 \\ 74 \\ + 25 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 17 \\ 43 \\ 23 \\ + 11 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 11. \quad 376 \\ - 141 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 978 \\ - 265 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 643 \\ - 378 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 703 \\ - 188 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 600 \\ - 381 \\ \hline \end{array}$$

Add.

$$\begin{array}{r} 16. \quad 3.81 \\ + 6.93 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 17.47 \\ + 8.93 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 23.45 \\ + 57.68 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 59.68 \\ + 10.04 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 363.00 \\ + 400.93 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 21. \quad 92.64 \\ - 8.43 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 74.63 \\ - 3.89 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 23.45 \\ - 21.62 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 49.86 \\ - 10.04 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 476.00 \\ - 183.41 \\ \hline \end{array}$$

## BRAINTICKLER



Find the sum of the numbers in:

- (a) the circle.
- (b) the triangle and rectangle.
- (c) the rectangle but *not* in the circle.

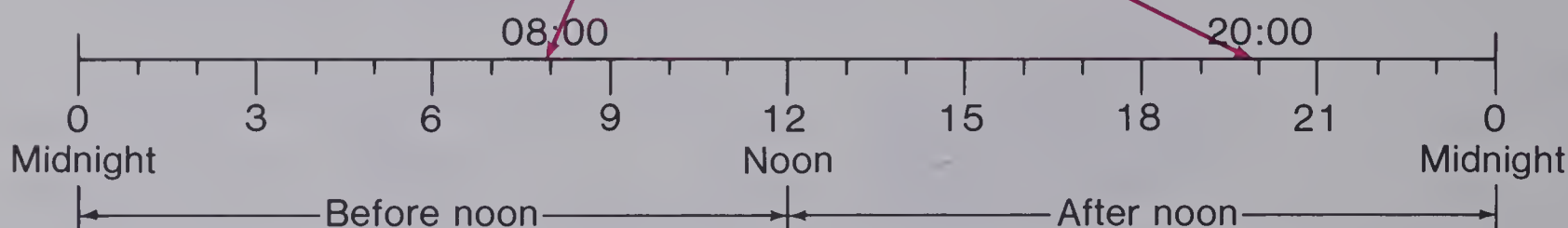
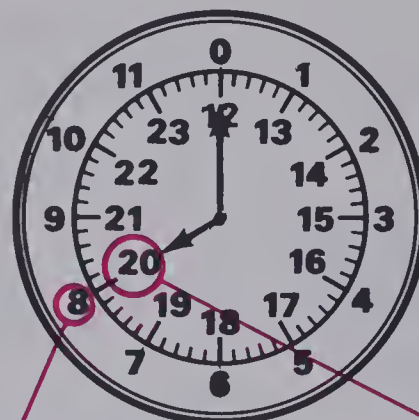
# The 24-Hour Clock

A day has 24 hours (24 h).

Two different times are shown on this clock.

08:00

20:00



Hours from midnight to noon are numbered 0 to 11.

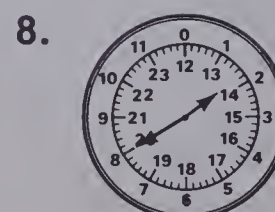
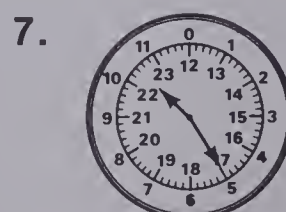
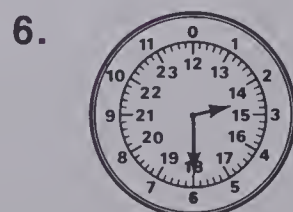
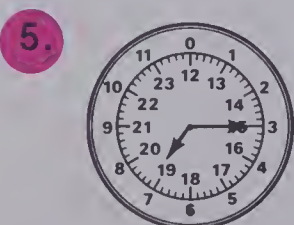
Hours from 12 noon to midnight are numbered 12 to 23.

## Exercises

Choose the correct one.

- |                        |                            |                        |                          |
|------------------------|----------------------------|------------------------|--------------------------|
| 1. Mary has breakfast. | 2. Jim went to the movies. | 3. Sabrina had supper. | 4. Mike is sound asleep. |
| 07:00 or 19:00?        | 08:00 or 20:00?            | 06:00 or 18:00?        | 01:00 or 13:00?          |

Record each time in two ways.



# Seconds

Seconds on a clock are read the same as minutes are.

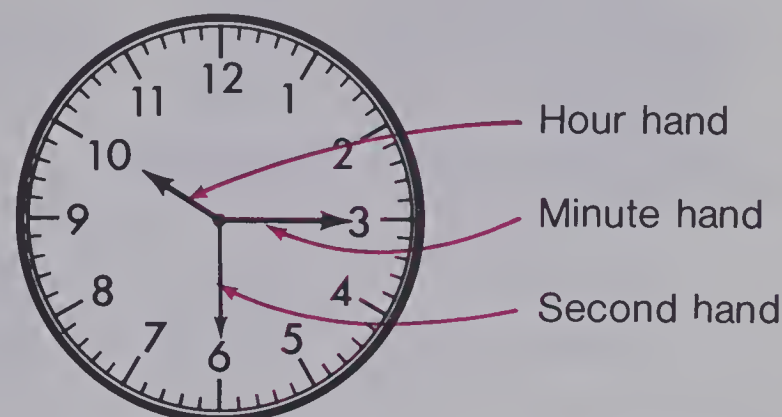
This clock shows  
15 min and 30 s after 10 or 10:15:30.

There are:

60 s (seconds) in 1 min (minute).

60 min in 1 h (hour).

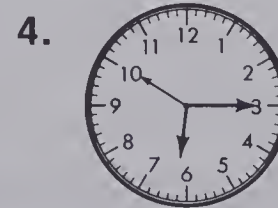
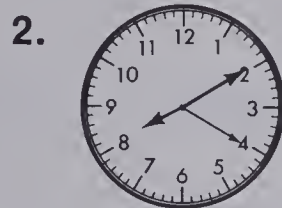
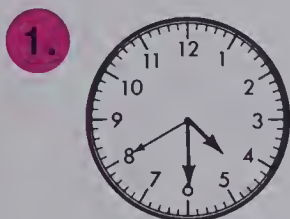
24 h in 1 d (day).



## Exercises

Write each time in two forms.

For example, 15 min and 30 s after 10 or 10:15:30.



5. How many hours in each?

- (a) 3 d      (b) 5 d      (c) 10 d      (d) 30 d      ★ (e) 365 d

6. How many minutes in each?

- (a) 4 h      (b) 12 h      (c) 24 h      (d) 100 h      (e) 1000 h

7. How many seconds in each?

- (a) 5 min      (b) 10 min      (c) 60 min      (d) 100 min      (e) 1000 min

★ 8. How many minutes in each? *Hint: How many minutes in 1 h?*

- (a) 1 d      (b) 2 d      (c) 7 d      (d) 10 d      (e) 30 d



# Time

There are many units used in telling time.

Jackie was born in 1970.

Diane's birthday is in February.

One week from today is a holiday.

There are 365 d (days) in 1 year.

There are 52 weeks in 1 year.

Seven days equals a week.

There are 24 h (hours) in 1 day.

There are 100 years in a century.

## Exercises

1. Name other ways units of time are used to tell when something happens.
2. In 1980, Jan said, "I am 10 years old." In which year was she born?
3. In 1979, Harry said, "7 years ago I was 2 years old." In which year was Harry 2 years old?
4. How many days in each?  
(a) 3 weeks      (b) 6 weeks      (c) 14 weeks      (d) 52 weeks
5. How many hours in each?  
(a) 3 d      (b) 6 d      (c) 10 d      (d) 30 d      ★ (e) 365 d
6. How many hours in each?  
*Hint:* How many hours in 1 d?  
(a) 1 week      (b) 2 weeks      (c) 10 weeks      (d) 50 weeks      (e) 52 weeks
7. Name the months of the year in order starting with January.
8. Name the 3rd month, the 6th month, the 8th month, the 12th month.
9. How many days in each month?  
(a) January      (b) February      (c) June      (d) December

# Librarian

A librarian often looks up information for customers.



1. How many years ago?

- (a) Canada became a country in 1867.
- (b) Manitoba became a province in 1870.
- (c) Orville and Wilbur Wright flew the first airplane in 1903.
- (d) Banting and Best, two Canadian doctors, discovered insulin to treat diabetes in 1922.
- (e) The pendulum clock was invented in Holland in 1657.

2. Alexander Graham Bell invented the telephone in 1876.

Marconi sent the first radio message across the Atlantic in 1901.

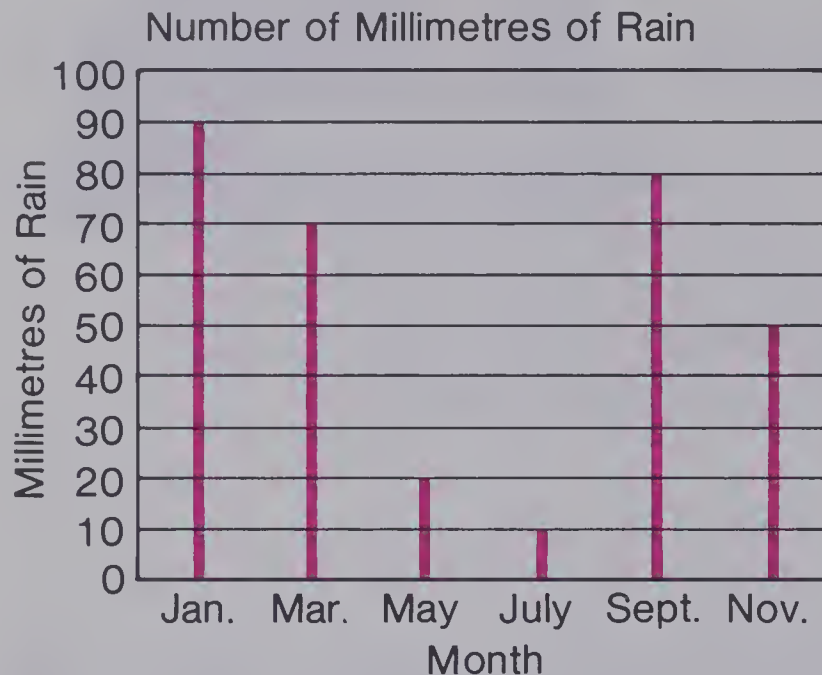
The message was received in St. John's, Newfoundland.

How many years were there between the two events?

3. How many years ago?

- |   |   |
|---|---|
| (a) 410, first lady of mathematics, Hypatia.                                | (g) 1519, Leonardo da Vinci dies.                                     |
| (b) 820, one of the first books on algebra written.                         | (h) 1608, telescope invented.   |
| (c) 1096, First Crusade.  | (i) 1637, Descartes uses co-ordinate system.                          |
| (d) 1202, 1, 1, 2, 3, 5, 8, 13, ... Fibonacci first recorded this sequence. | (j) 1867, Canadian Confederation.                                     |
| (e) 1349, Black Death killed a large part of Europe's population.           | (k) 1916, Einstein does some of his most important work — relativity. |
| (f) 1492, first printed arithmetic book (in Italy).                         | (l) 1969, first man on moon — Lovell.                                 |
|   | (m) 1977, space probe launched to Venus.                              |

# Chapter Test



1. (a) In which month was the rainfall 50 mm?
- (b) Which month had the least rainfall?
- (c) How much rain fell in November?
- (d) In which month was there seven times as much rain as in July?

2. Number of cars in a national park with licence plates recorded by province.

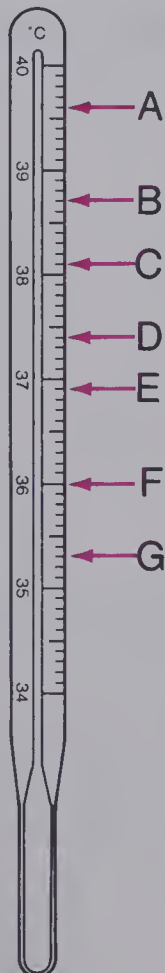
Draw a segment graph to show the information.

3. Record the temperatures indicated by the letters:

A, B, C, D, E, F, G.

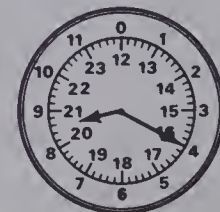
5. Copy and complete.

- min = 1 h
- s = 1 min
- d = 1 week
- d = 1 year



Province	Number
British Columbia	500
Alberta	750
Saskatchewan	225
Manitoba	350
Ontario	900

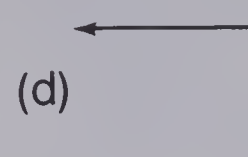
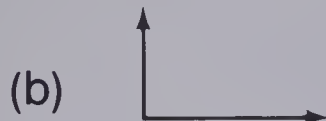
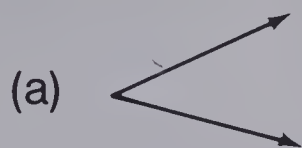
4. Mark's temperature was  $39.3^{\circ}\text{C}$ . It dropped  $2.4^{\circ}\text{C}$ . What is his temperature now?
6. Record the time in two ways.





# Cumulative Review

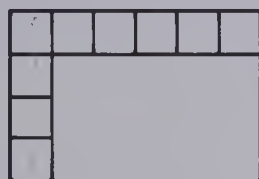
1. Which angles are right angles?



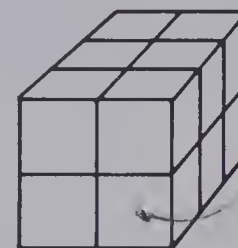
2. Which shapes are congruent to shape A?



3. Calculate the area.



4. How many cubic units?



5. Round to the nearest multiple of 10.

(a) 238.2

(b) 241.3

6. Change each to a decimal.

(a)  $\frac{3}{5}$

(b)  $\frac{7}{10}$

Add.

$$\begin{array}{r} 7. \quad 215 \\ 139 \\ 654 \\ + 190 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5231 \\ 602 \\ 59 \\ + 1003 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 9. \quad 3145 \\ - 1902 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 345.6 \\ - 29.9 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 11. \quad 84 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 631 \\ \times 36 \\ \hline \end{array}$$

Divide.

$$13. \quad 8 \overline{)7235}$$

$$14. \quad 6 \overline{)4598}$$

Estimate the answers by rounding each number to the nearest 10.

15.  $76 \times 33$

16.  $139 \times 48$

17.  $61 \times 23$

18.  $39 \times 78$

# Chapter 11

# Geometry

Congruence

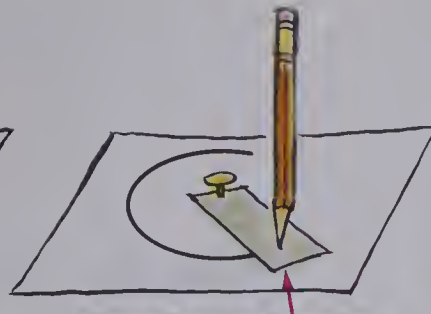
Slides, Turns, and Flips



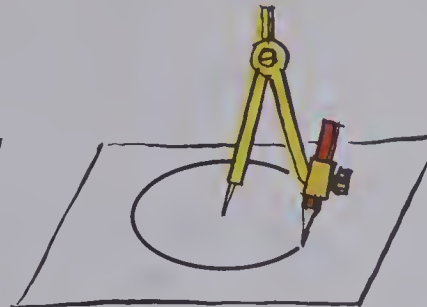
# Drawing Circles



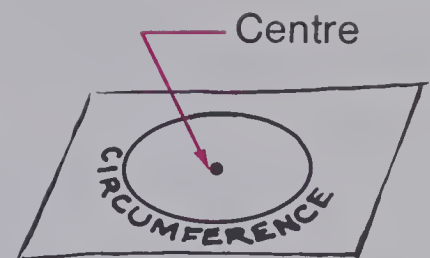
Round object



Cardboard strip



Compass

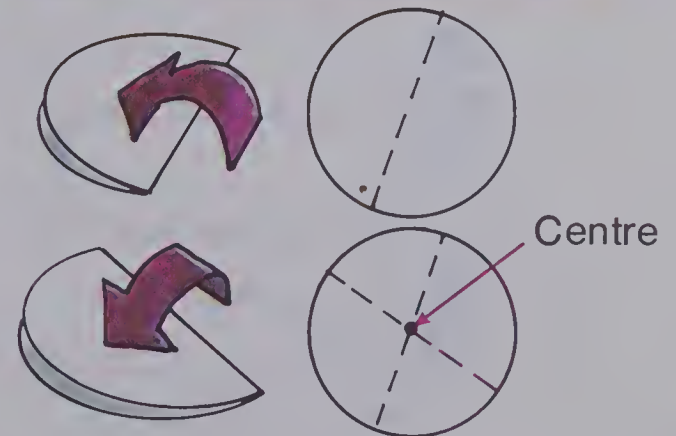
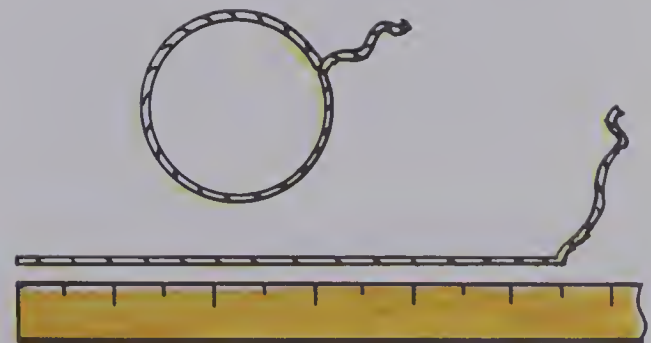


A circle

The distance around a circle is the **circumference** of the circle.

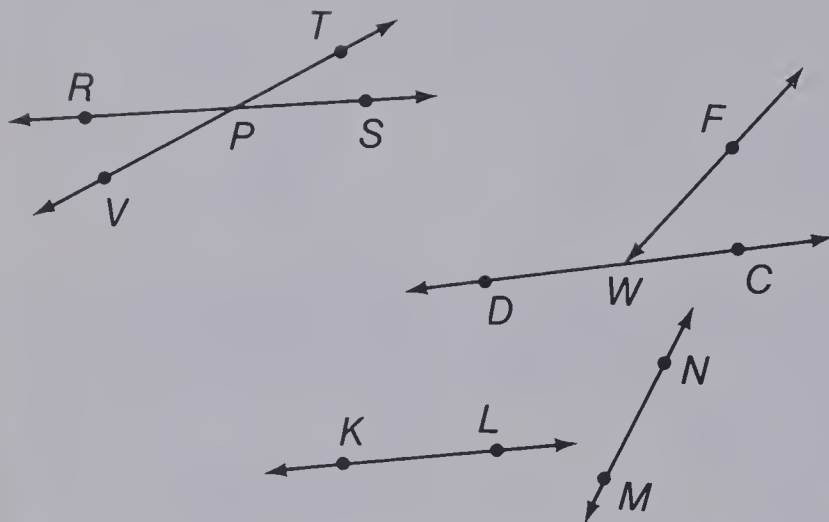
## Exercises

1. Draw a circle each way.
2. Mark the centres of your circles.  
Can you mark all three centres? Explain.
3. Draw another circle.  
Place a piece of string around the circle.  
How long is the string?
4. Draw a circle. Cut it out.  
Fold the circle. Open it.  
Fold it in another place.  
Mark where the two fold lines cross.  
Mark the **centre** of the circle.

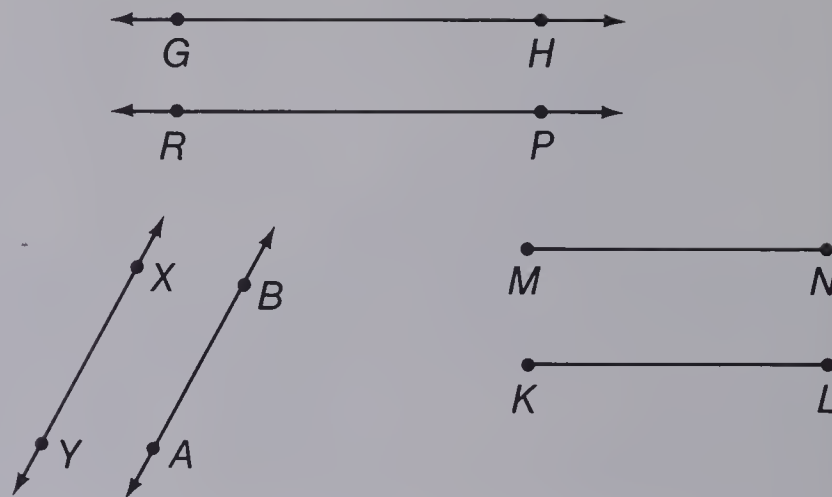




# Parallel Lines



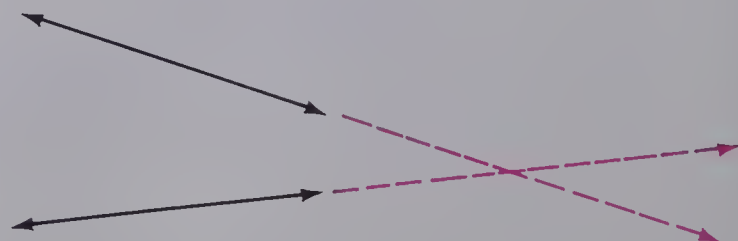
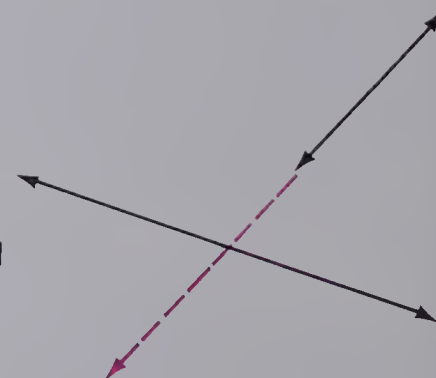
These pairs of lines cross each other.



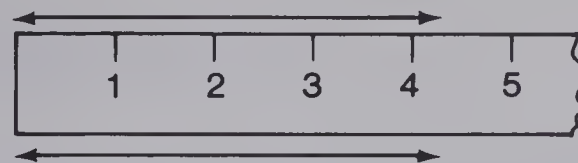
When two lines or line segments never cross, we say the lines are **parallel**.

## Exercises

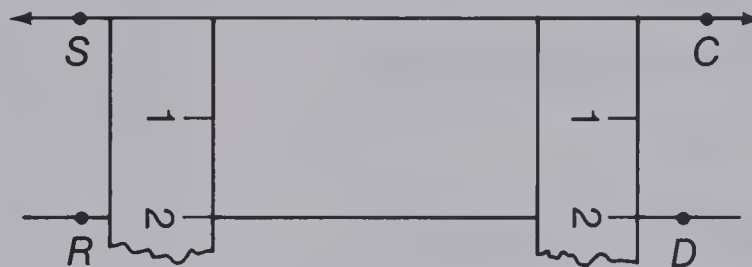
1. Draw a line  $RG$ .  
Draw line  $SH$  so that it crosses line  $RG$ .  
Put a  $Q$  where they cross.
2. Look at these lines.
  - (a) Do they cross? (Remember: Lines go on forever!)
  - (b) We can show more of the lines by making the part you see longer. Do they cross now?
  - (c) Do these two lines cross?
3. Look at these two lines.
  - (a) Do they cross?
  - (b) Imagine more of the lines showing. Do they cross?



4. Place your ruler on your page.  
Draw a line along each edge.  
These lines will never cross.  
Label them **parallel lines**.

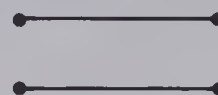


5. Draw line  $SC$ .  
Draw  $RD$  2 cm from the first.  
Will the two lines ever cross?  
Label them *parallel lines*.



6. Look at these segments.  
If you make them longer,  
will they ever cross?  
Do these segments look parallel?

(a)

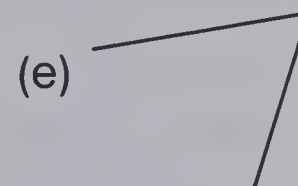
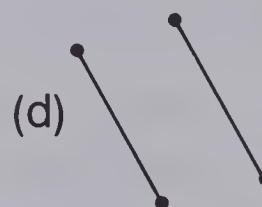
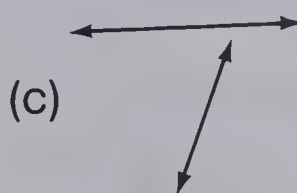
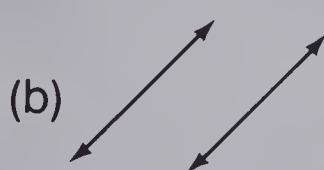


(b)

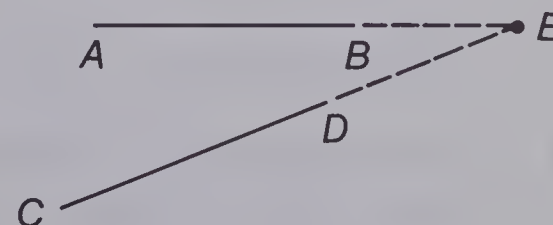
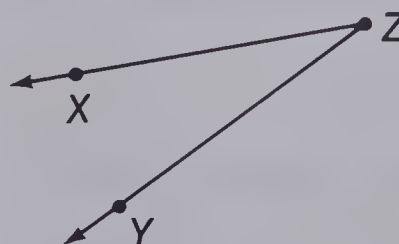
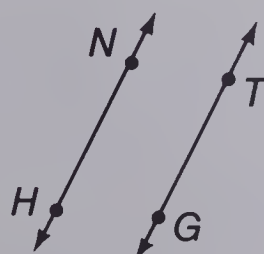
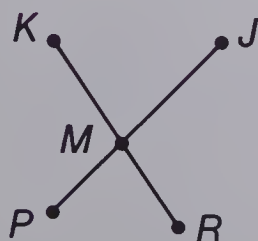


7. Which pairs:  
(i) are parallel?

(ii) cross each other?

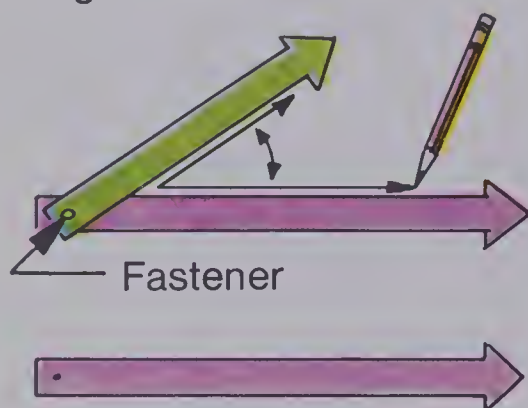


8. Name the common point where there is one.  
Which are parallel? Which cross each other?

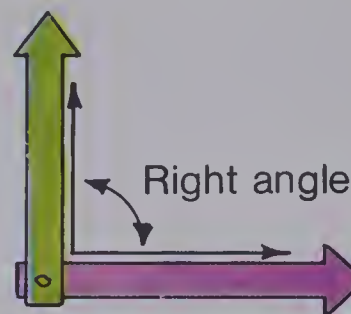


# Angles

An angle-maker



This represents a **ray**.  
Make two and fasten them.



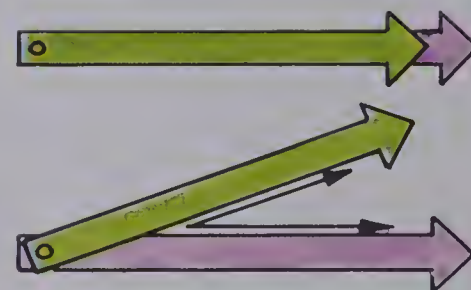
A line is an example of  
a special angle.

## Exercises

1. Construct an *angle-maker*.  
Use it to draw three angles.

Start with the two rays of the angle-maker closed.

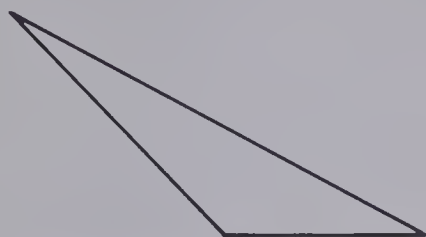
2. Open the rays to form a small angle.  
Trace the angle. Remember to put arrowheads  
on the rays.
3. Open the rays further. Trace.
4. Open the rays to make a *right angle*. Trace.
5. Open the rays to make a line.
6. Draw a *segment*. Tell one way a segment  
differs from a ray.



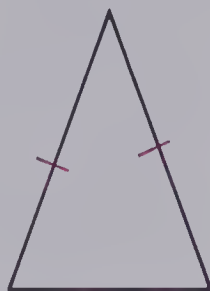


# Types of Triangles

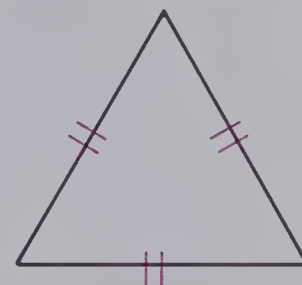
Triangles identified by the lengths of the sides.



No two sides congruent



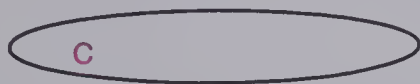
2 sides congruent



3 sides congruent

## Exercises

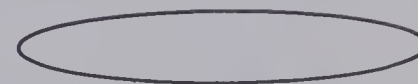
1. Draw three loops and label as shown. Put the letter of each shape in the right loop.



No two sides congruent



2 sides congruent



3 sides congruent

(a)



(b)



(c)



(d)



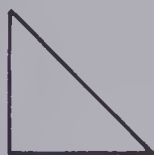
(e)



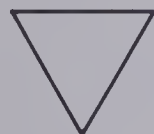
(f)



(g)



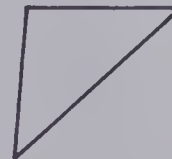
(h)



(i)



(j)



(k)



2. Describe each type of triangle.

(a)



(b)



(c)

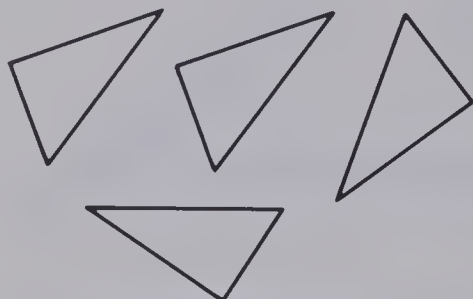


(d)

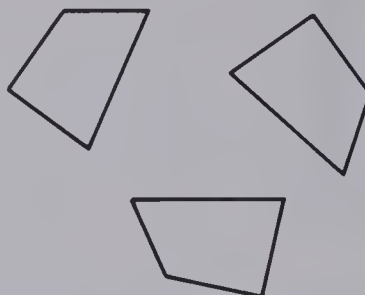


# Congruent Shapes

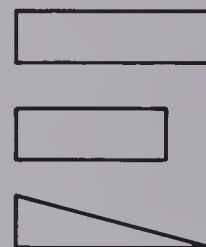
Congruent shapes have the same size **and** shape.



Congruent shapes



Congruent shapes



Not congruent shapes

## Exercises

Trace and cut out shape A. With which shapes is it congruent?

1.



A



B



C



D

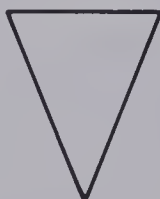


E

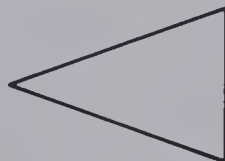
2.



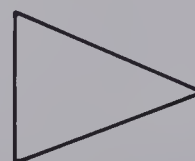
A



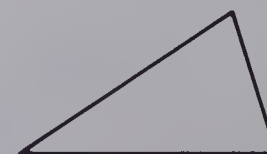
B



C



D



E

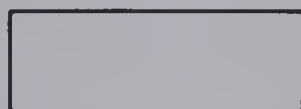
3.



A



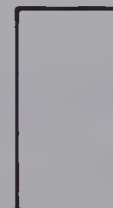
B



C



D



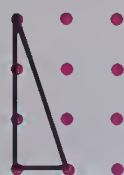
E

Which shapes are congruent to shape A?

4.



A



B



C



D



E

5.



A



B



C

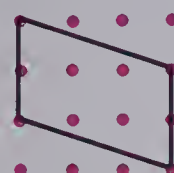


D



E

6.



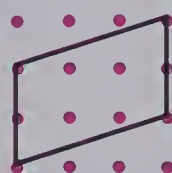
A



B



C

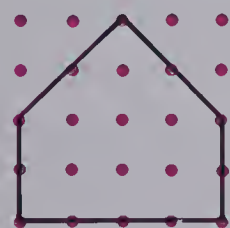


D

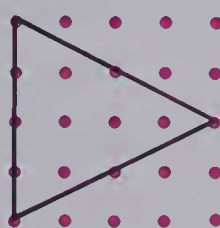


E

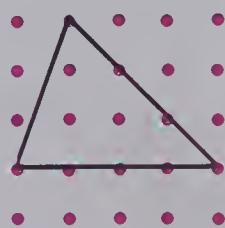
7. On geo-paper, draw a shape congruent to each.



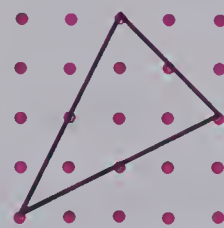
A



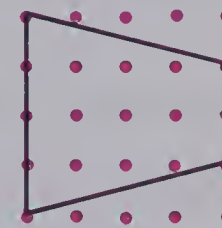
B



C



D



E

8. Choose a partner.

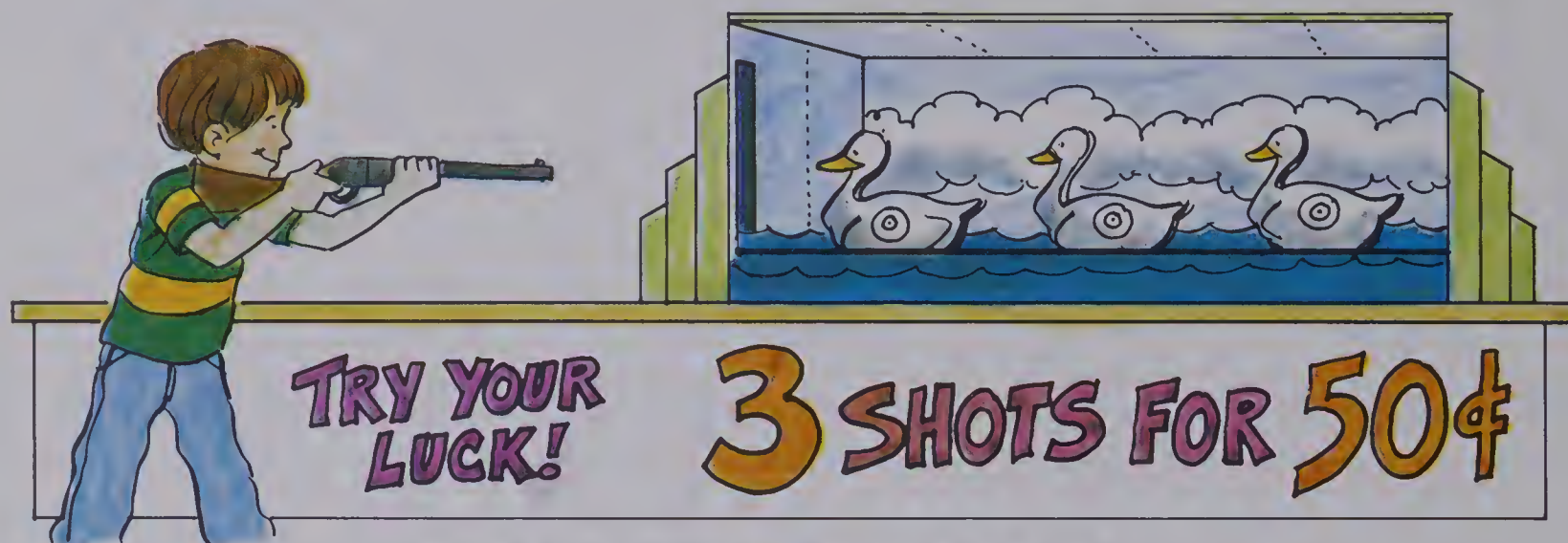
Make a shape on your geo-board.

Ask your partner to make a shape congruent to yours.

Who is the winner after 10 turns each?



# Shooting Gallery



The ducks **slide** across the tank.

## Exercises

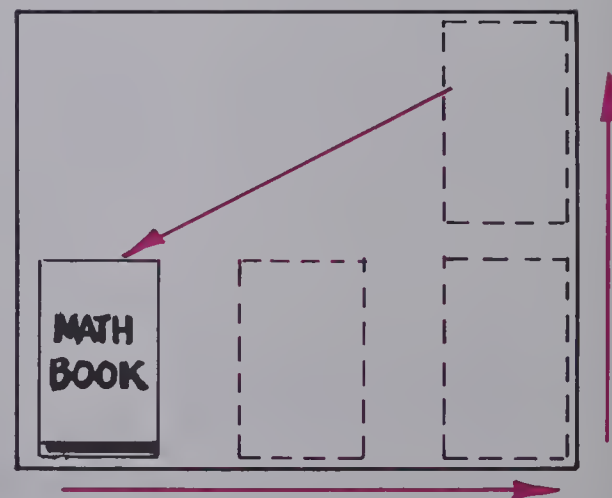
1. Does the duck change shape as it moves along?
2. Does the duck change size as it moves along?
3. Does the duck turn as it moves along?
4. What does change?

*Slide* a book along the lower edge of your desk.

5. Does the book change shape?
6. Does the book change size?
7. Does the book turn?
8. What does change?

*Slide* the book *up* along the side edge of the desk.

9. Answer Questions 5 to 8 for this slide.



# Drawing Slides

1. Trace this shape.

Cut it out.

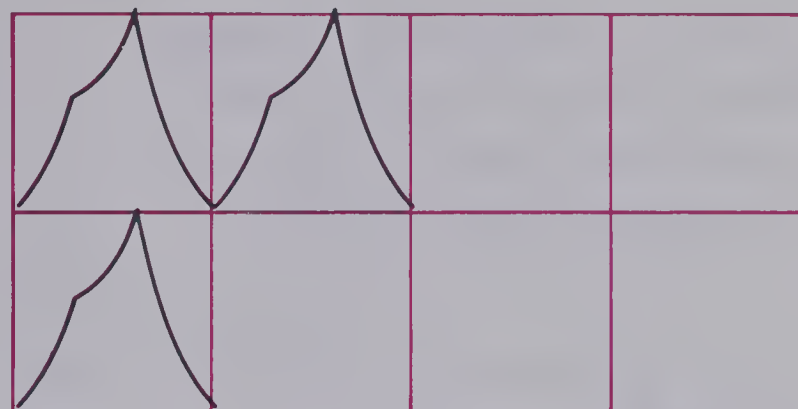
Place the pattern on the first square of squared paper. Trace.

*Slide* one square to the right. Trace.

Repeat for the other squares.

Return the pattern to the first square.

*Slide* it down and repeat.



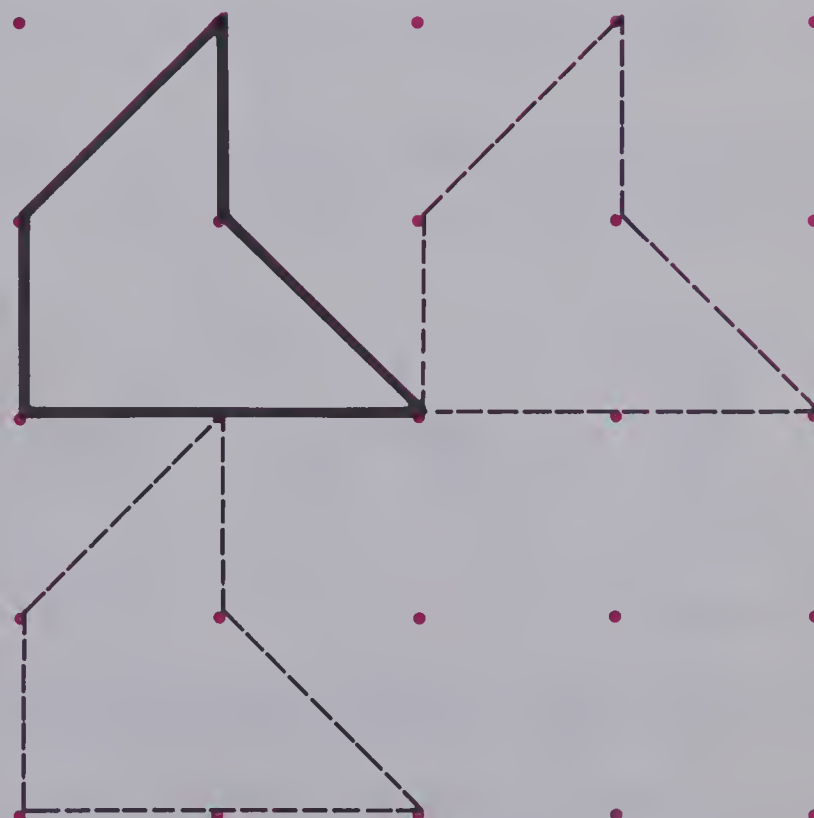
2. Use dot paper.

Copy the shape.

Make a pattern by repeating the shape after a *slide* of 2 units.

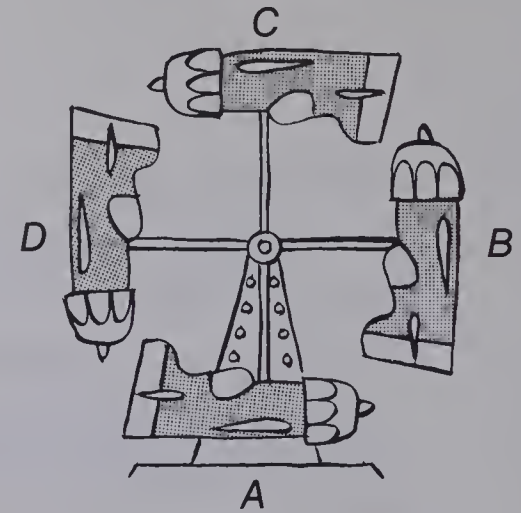
Repeat the pattern by sliding the shape *down* 2 units.

Colour your pattern.



# Turns

At the fair, Gladys and Romaine had a ride on Loop-da-Plane. They got in when it was at A. The plane started to **turn**.



## Exercises

1. Which way, left or right, were they facing when they got in at A?
2. When they were at B, after  $\frac{1}{4}$  turn, which way did they face — up or down?
3. When they were at C, after  $\frac{1}{2}$  turn, which way did they face?
4. When they were at D, after  $\frac{3}{4}$  turn, which way did they face?

Gladys and Romaine watched the gymnasts. One gymnast made a *turn* like this.

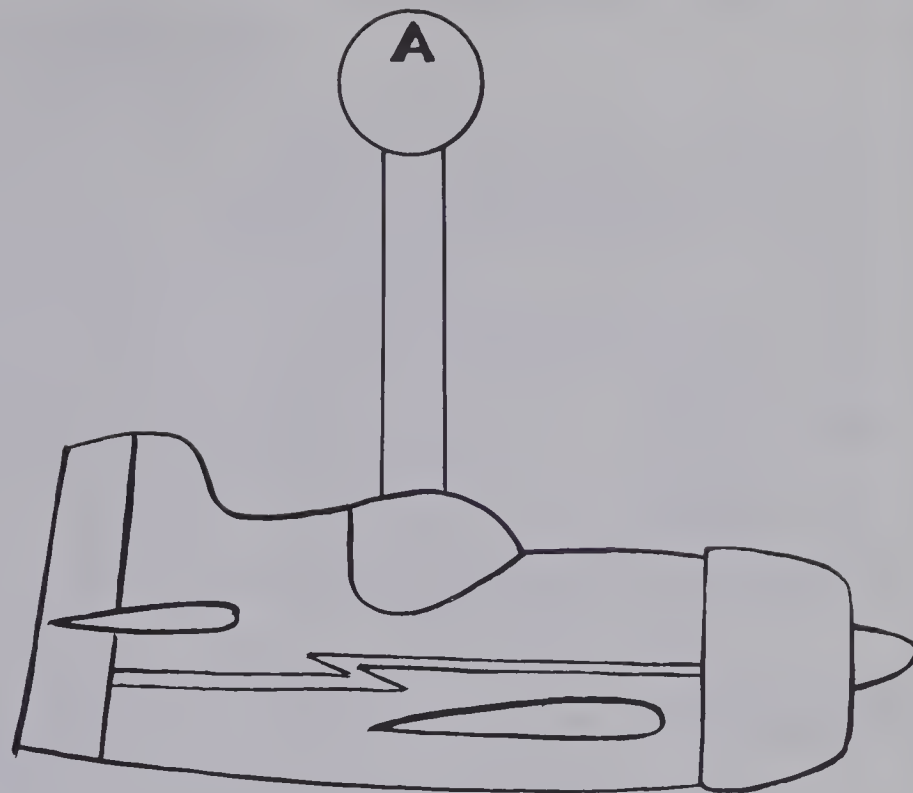


In the *turn*,

5. Does the gymnast change shape?
6. Does the gymnast change size?



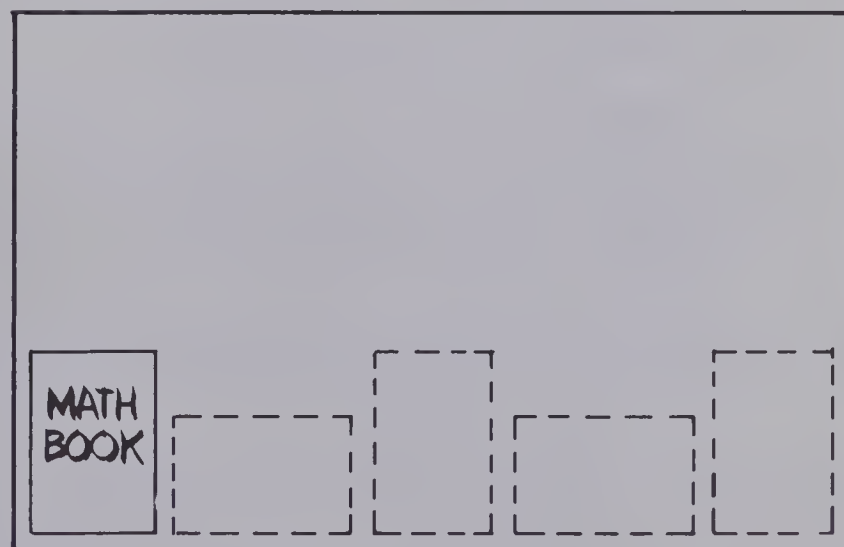
7. Make a picture to show a turn.  
Trace and cut out this plane.  
Trace the pattern in your book.  
Place a pencil point at A and  
turn the plane  $\frac{1}{4}$  turn. Trace.  
Repeat for  $\frac{1}{2}$  turn and  $\frac{3}{4}$  turn.  
Make other patterns.



8. Name as many examples of *turns* as you can.

9. Use your math book.  
Place it on the corner of  
your desk as shown.  
*Turn* the book along the  
edge of the desk.

- (a) Does the size of the  
book change?  
(b) Does the shape of the  
book change?  
(c) What does change?  
(d) Can you think of another  
way to *turn* the book?



# More Turns

Trace and cut out this shape.  
Place it on grid paper as shown.

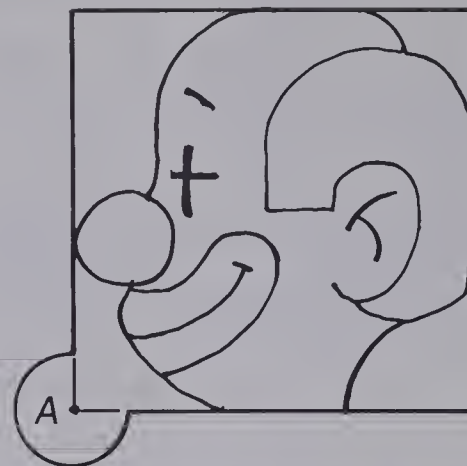
Trace.

Place pencil on dot at A.

Make  $\frac{1}{4}$  turn.

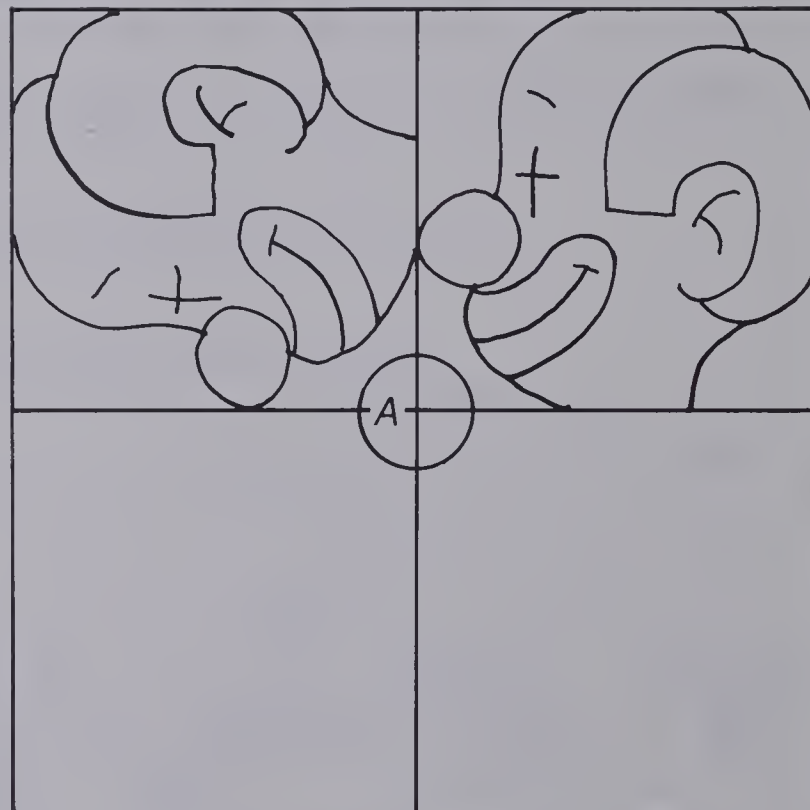
Trace again.

Repeat for  $\frac{1}{2}$  turn and  $\frac{3}{4}$  turn.

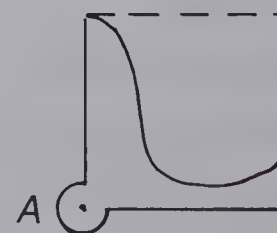
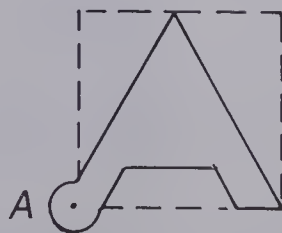
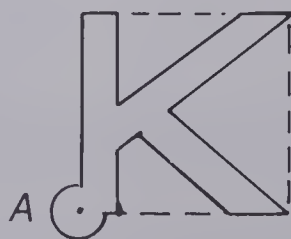


## Exercises

1. (a) Which way was the clown facing when you started?
- (b) Which way was he facing after  $\frac{1}{4}$  turn?
- (c) Which way was he facing after  $\frac{1}{2}$  turn?
- (d) Which way was he facing after  $\frac{3}{4}$  turn?
- (e) Which way was he facing after a full turn?

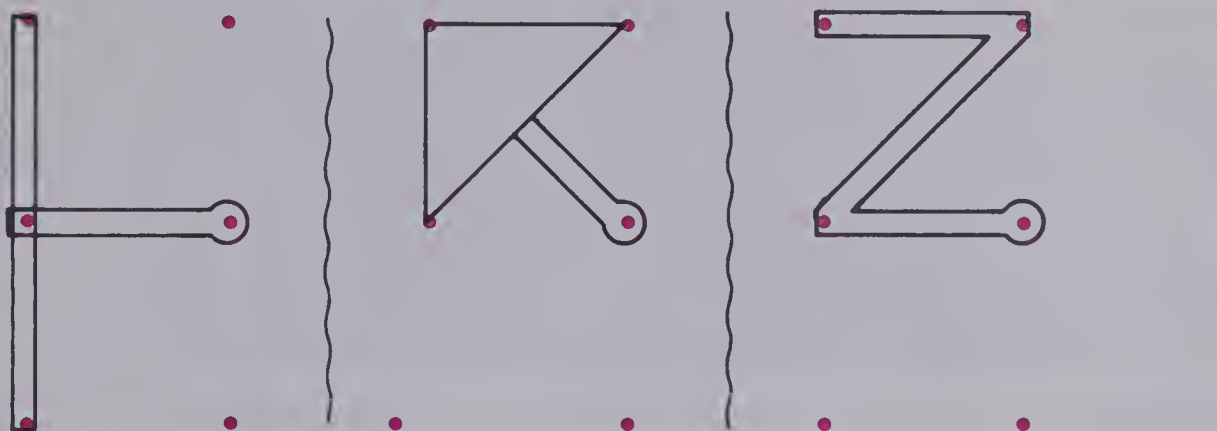


2. Use these shapes to make patterns to show *turns*.



3. Draw each pattern on dot paper as shown.

Then draw the shape after  $\frac{1}{4}$  turn,  $\frac{1}{2}$  turn,  $\frac{3}{4}$  turn, full turn.



## Tune Up

Multiply.

1.  $35 \times 10$     2.  $84 \times 100$     3.  $97 \times 1000$     4.  $40 \times 50$     5.  $976 \times 1$

6.  $\begin{array}{r} 26 \\ \times 9 \\ \hline \end{array}$     7.  $\begin{array}{r} 356 \\ \times 8 \\ \hline \end{array}$     8.  $\begin{array}{r} 63 \\ \times 35 \\ \hline \end{array}$     9.  $\begin{array}{r} 481 \\ \times 64 \\ \hline \end{array}$     10.  $\begin{array}{r} 608 \\ \times 7 \\ \hline \end{array}$

Divide.

11.  $80 \div 10$     12.  $700 \div 100$     13.  $23\,000 \div 1000$     14.  $86\,000 \div 10$

15.  $3 \overline{)72}$     16.  $6 \overline{)846}$     17.  $3 \overline{)296}$     18.  $9 \overline{)579}$     19.  $4 \overline{)438}$

Write as a decimal.

20.  $\frac{6}{10}$     21.  $\frac{1}{2}$

Add.

22.  $\begin{array}{r} 2.3 \\ + 4.5 \\ \hline \end{array}$

23.  $\begin{array}{r} 5.9 \\ + 8.7 \\ \hline \end{array}$

Subtract.

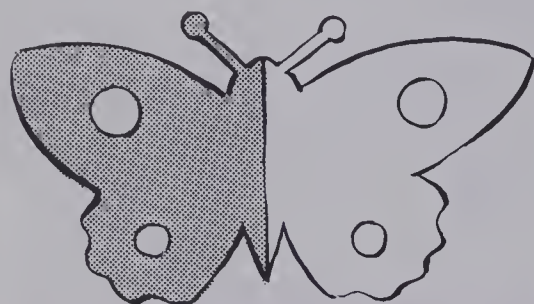
24.  $\begin{array}{r} 9.8 \\ - 3.5 \\ \hline \end{array}$

25.  $\begin{array}{r} 16.2 \\ - 9.9 \\ \hline \end{array}$

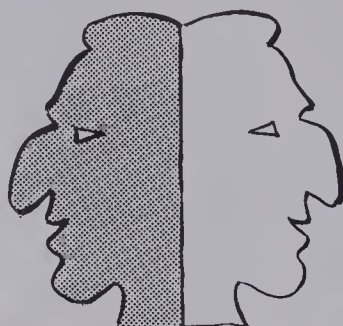


# Flips

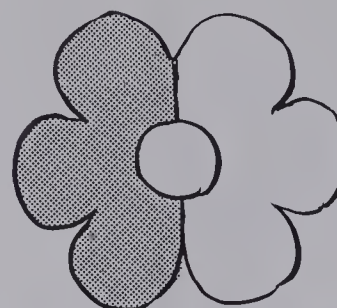
At the fair, Gladys and Romaine saw a man make these paper cutouts.



The Butterfly



The Hooknose Twins



The Flower



The Cowboy

Each half is a **flip** of the other half.

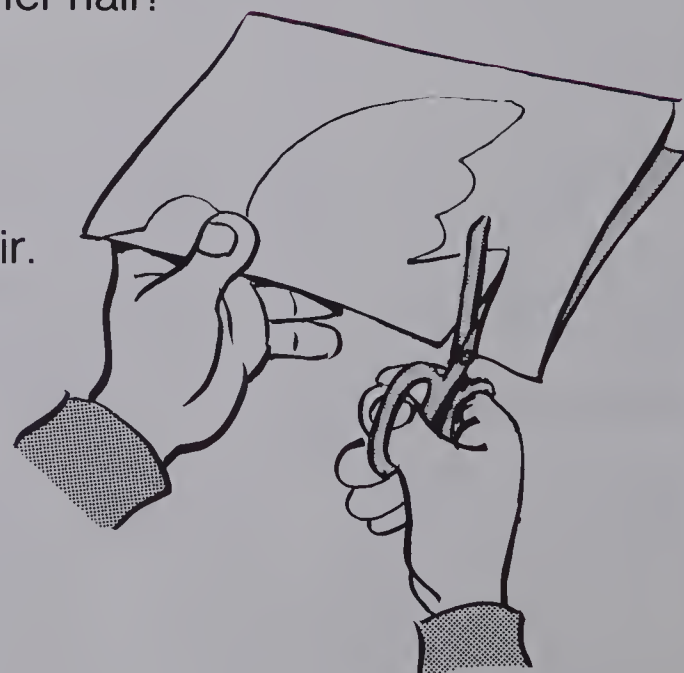
## Exercises

1. Is one half of each cutout the same shape as the other half?
2. Is one half of each cutout the same size as the other half?
3. Is one half facing the opposite direction to the other half?
4. How is one half different from the other half?
5. Use paper to make a cutout like the man at the fair.
  - (a) Fold first.
  - (b) Hold the folded edge and cut a pattern.
  - (c) Open up.

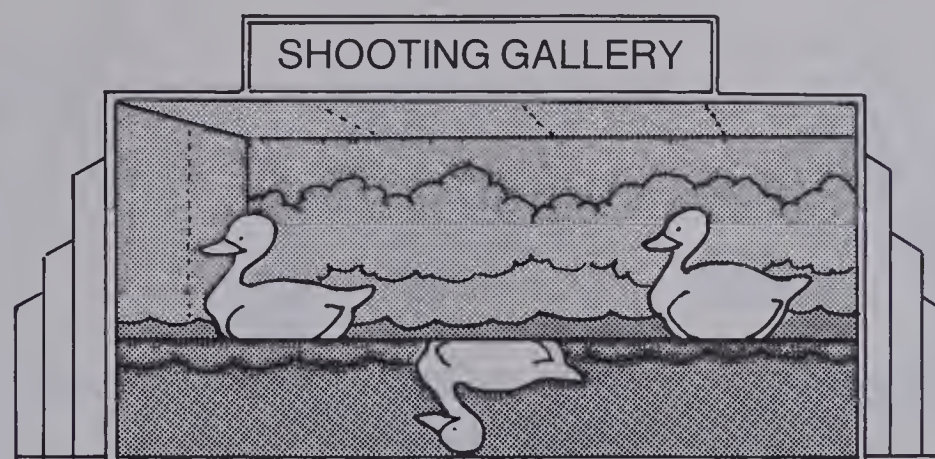
Cut some more *flip* patterns.

Does one half always match the other half?

Is there a fold line between the two halves?



6. Gladys and Romaine went past the shooting gallery again.  
One duck had been hit.

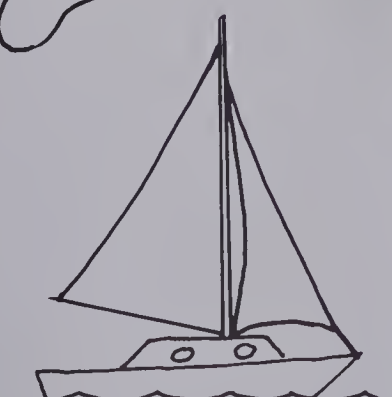
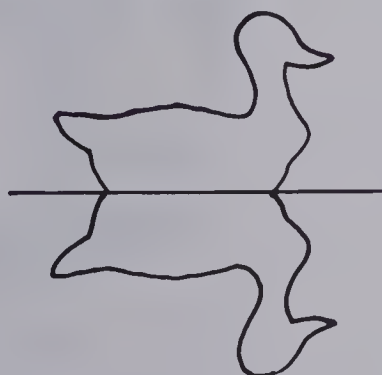


The duck  
has *flipped*.

Trace each duck and draw it *flipped* over the line.



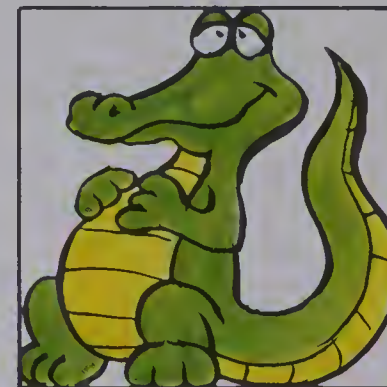
7. Romaine uses a plastic mirror at school to decide which are *flips*.  
Which are *flips*? Explain.





# More Flips

Gladys used cutouts to draw flip patterns.



Later — the  
Alligator

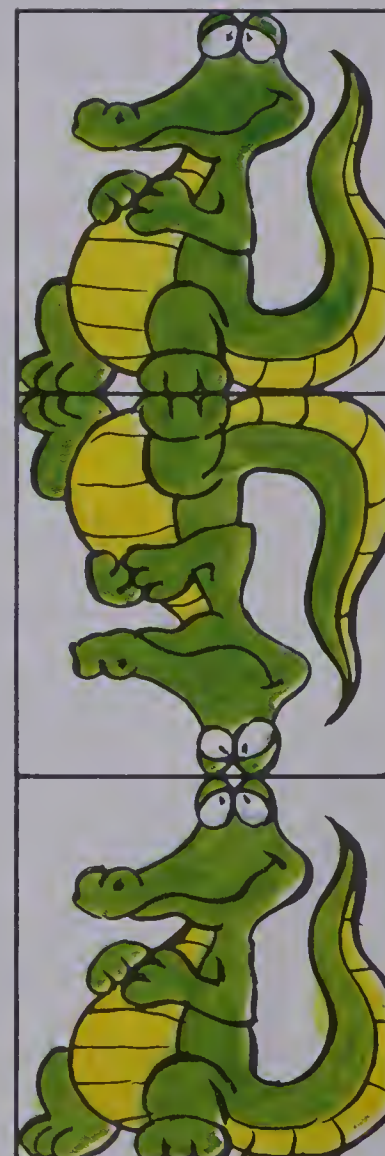
## Exercises

Trace and cut out *Later — The Alligator*.

1. Place him on squared paper. Trace.  
Which way is he facing?
2. Flip him over the line at his tail. Trace.  
Which way is he facing?
3. Flip him over the line at his nose. Trace.  
Which way is he facing?

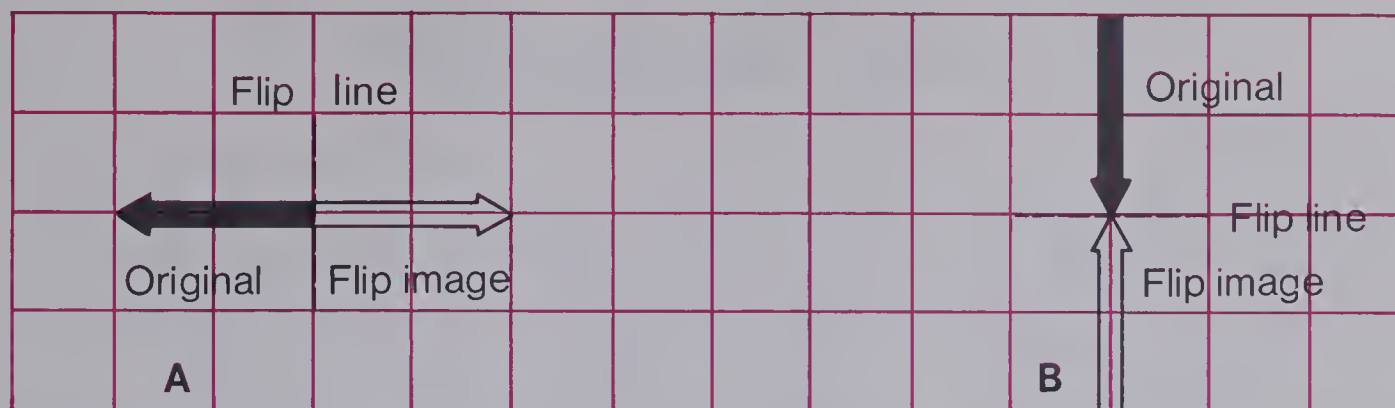
Place *Later — The Alligator* on a new sheet of squared paper. Trace.

4. Flip him over the line at his feet. Trace.  
Is he upside down now?
5. Flip him over the line at his head. Trace.  
Is he right side up now?





6.



When we *flip* a shape over a line, there are three names that are important.

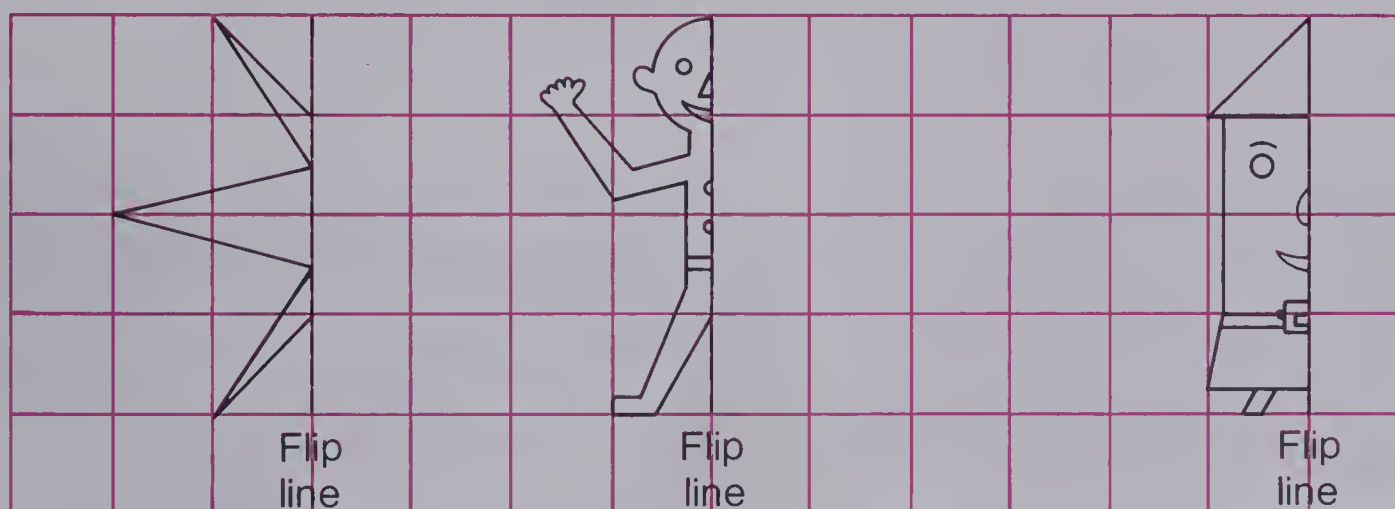
Original

Flip line

Flip image

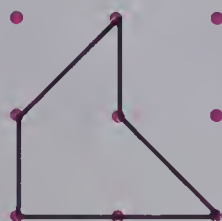
What does each mean?

7. Draw each shape on squared paper.  
Then draw the other half of each *flip* pattern.  
Use a plastic mirror to check.

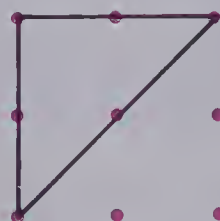


8. Which figure is the flip of A?

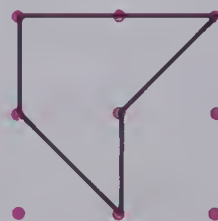
A



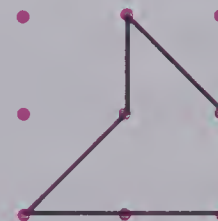
B



C



D



# City Designer



Art's house is on Third Avenue and First Street.

He walks two blocks to school.

He can walk 1 block on First Street, then 1 block on Fourth Avenue or 1 block on Third Avenue, then 1 block on Second Street.

## Exercises

1. Find the Fair Grounds.
  - (a) On which avenue is it?
  - (b) On which street is it?
2. Locate Doug's house.
  - (a) On which avenue is it?
  - (b) On which street is it?
3. Who lives on
  - (a) Sixth Avenue and First Street?
  - (b) Second Street and First Avenue?
4. Name two ways that Deb could go to the Fair Grounds.

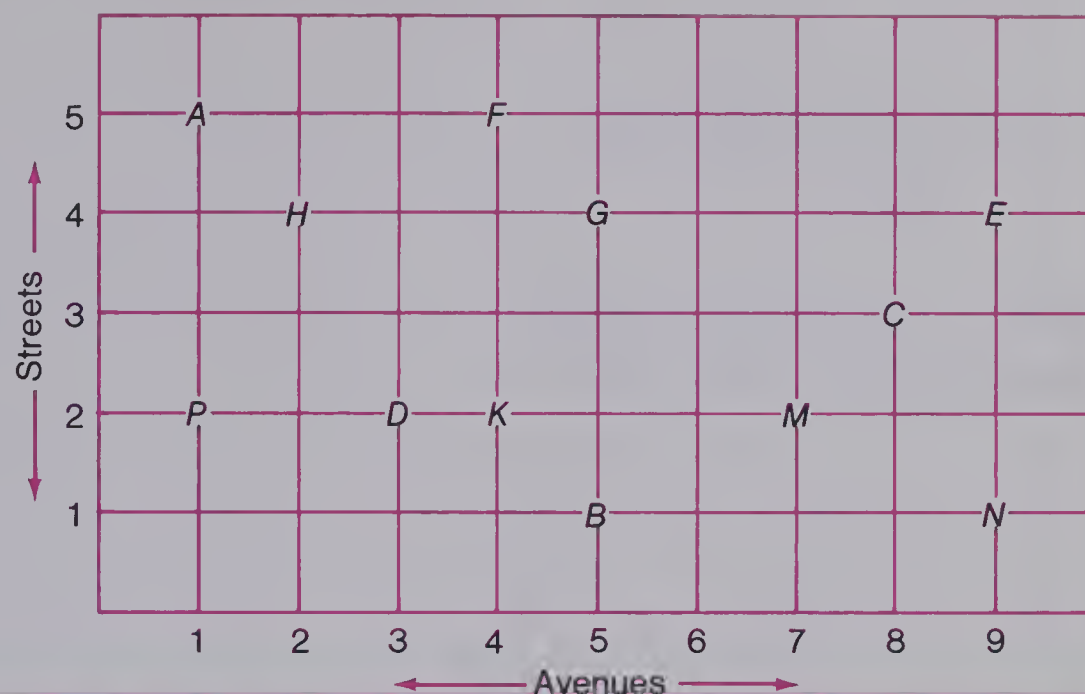


# Streets and Avenues

John drew a map of his town.

He said, "I live at 1st and 5th."

Harriett said, "I live at 8th and 3rd."



John uses this rule: Name the avenue first, then the street.

## Exercises

Use John's rule.

1. What letter indicates where John lives?
2. How would you describe point *B*?
3. What letter indicates where Harriett lives?
4. Where is point *F*?  
Where is point *G*?  
How are points *G* and *F* different?
5. The address of point *H* is 2nd Avenue and 4th Street.  
We can write this (2nd, 4th) using John's rule.  
Give the address of these points in (■, ■) form.  
(a) *M*                      (b) *N*                      (c) *P*

## BRAINTICKLER

In a rectangular room, how do you place 8 chairs along the walls so that there are an equal number of chairs along each wall?



# Using Grids

Find the point named by  
(3, 5).

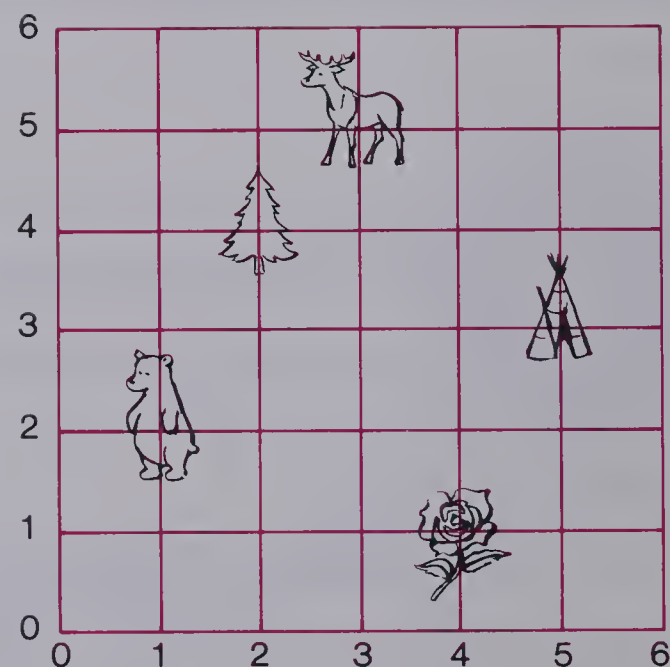
First: move over 3 units.

Second: move up 5 units.



## Exercises

1. The rose is located by  
(over ■, up ■).
2. The fir tree is located by  
(over ■, up ■).
3. What is located by  
(over 5, up 3)?
4. As a shortcut, we leave out the  
words “over” and “up”.  
What is located by (3, 5)?
5. Where is the bear?



6. Mike and George hiked all day.

They were:

(1, 5)    (5, 3)    (2, 0)    (1, 4)    (1, 1)

(0, 2)    (3, 2)    (1, 1)

(3, 4)    (1, 4)    (2, 3)    (4, 6)    (6, 4)

Copy and read the message.

Use a 6 × 6 grid for Question 7.

7. Locate these points.

(over 1, up 1)

(over 1, up 5)

(over 3, up 1)

(over 5, up 5)

(over 5, up 1)

Join the points in order.

What letter do you get?

8. Write the ordered pairs for each point.

(a) *R*    (b) *S*    (c) *T*

(d) *U*    (e) *V*    (f) *W*

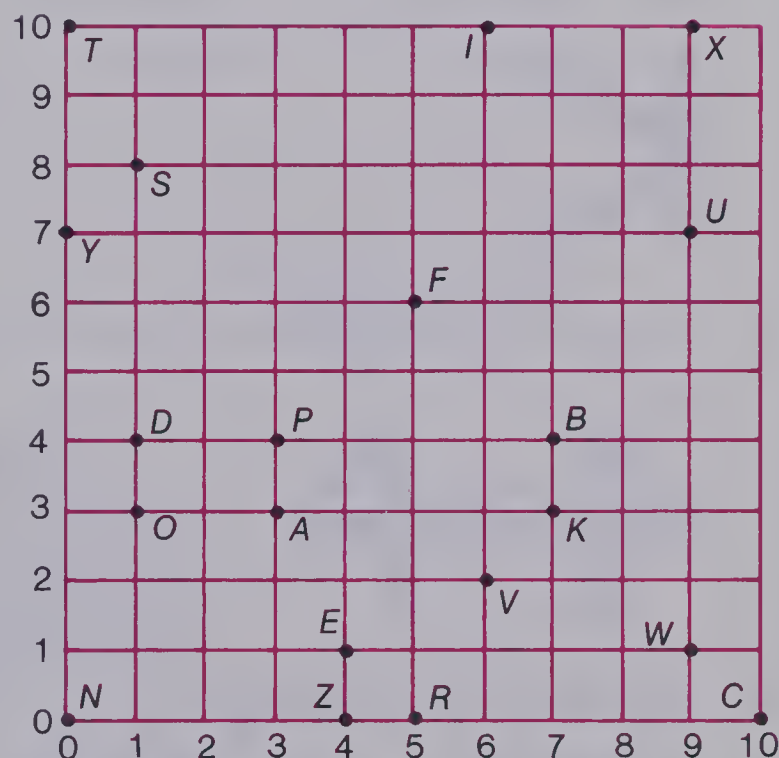
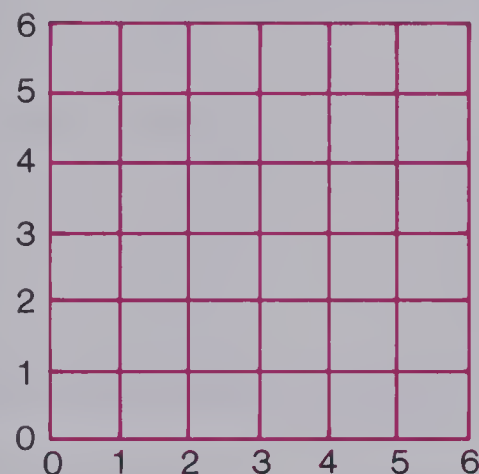
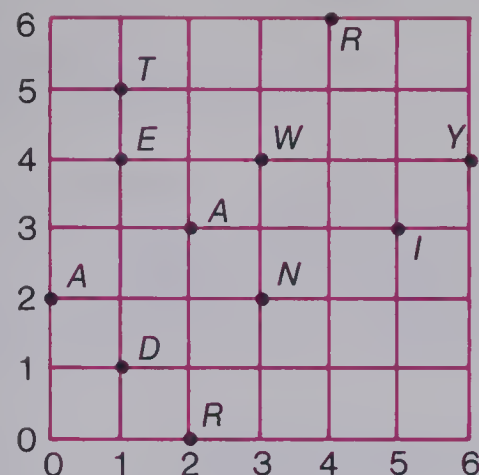
(g) *X*    (h) *Y*    (i) *Z*

(j) *A*    (k) *B*    (l) *C*

(m) *D*    (n) *E*    (o) *F*

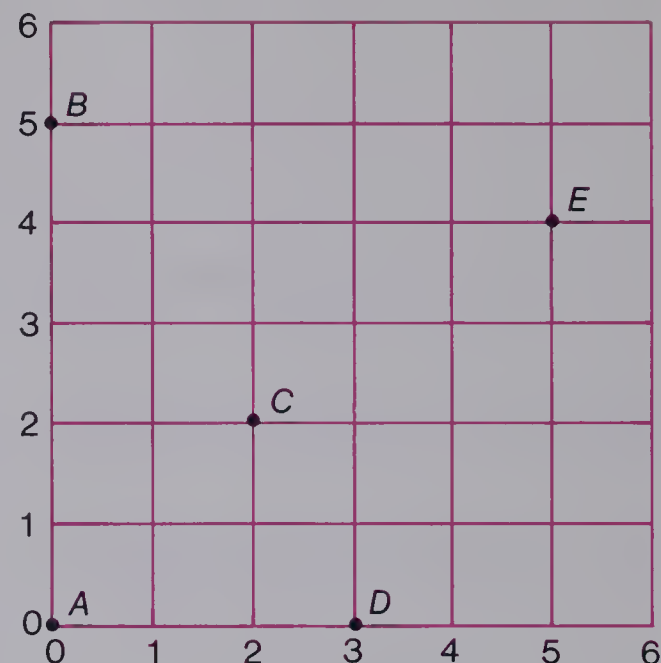
9. What do cats strive for?

(3, 4)    (9, 7)    (5, 0)    (5, 0)    (5, 6)    (4, 1)    (10, 0)    (0, 10)    (6, 10)    (1, 3)    (0, 0)



# Chapter Test

1. Use a  $10 \times 10$  grid.  
Locate these points. Label.  
(10, 5) (6, 8) (1, 2) (3, 0) (0, 7)



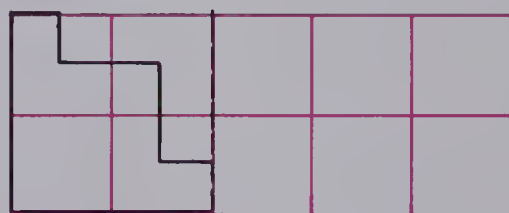
2. Name the ordered pairs.  
*A B C D E*

3. Draw each shape to show the following.

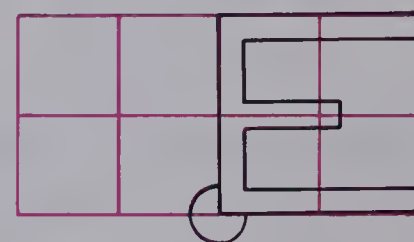
(a) Slide



(b) Flip



(c)  $\frac{1}{4}$  turn

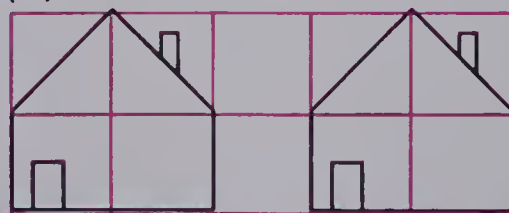


4. Name each as a slide, turn, or flip.

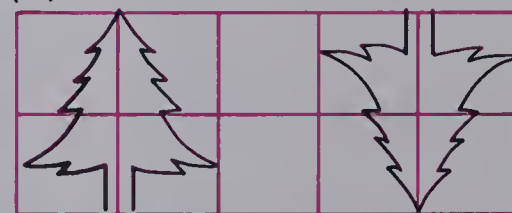
(a)



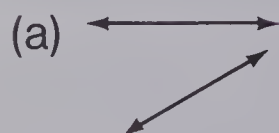
(b)



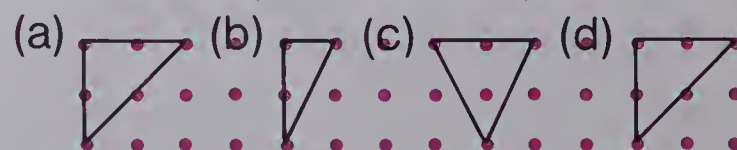
(c)



5. Which lines are parallel?



6. Which triangles are congruent?





# Cumulative Review

1. Multiply.

(a)	50	(b)	500	(c)	196
	$\times 9$		$\times 3$		$\times 6$
	<u>      </u>		<u>      </u>		<u>      </u>

2. Divide.

(a)	$7 \overline{)210}$	(b)	$9 \overline{)819}$
(c)	$300 \div 10 = \blacksquare$		

3. What number is halfway between:

- (a) 100 and 200?                      (b) 150 and 200?                      (c) 500 and 1000?

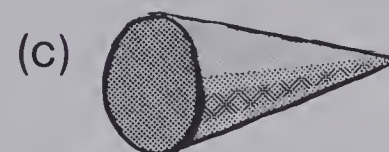
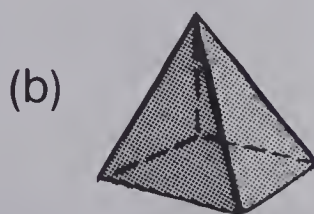
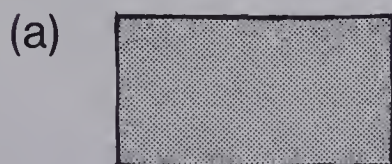
4. Add.

(a)	0.3	(b)	28.7	(c)	6014	(d)	\$7.04	(e)	\$11.47
	$+ 2.5$		$+ 12.8$		149		1.65		6.71
	<u>      </u>		<u>      </u>		3612		2.13		19.05
					$+ 56$		$+ 0.55$		$+ 23.63$
					<u>      </u>		<u>      </u>		<u>      </u>

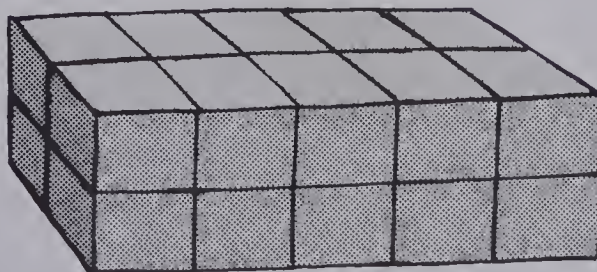
5. Subtract.

(a)	1.4	(b)	14.0	(c)	832	(d)	\$7.65	(e)	\$26.44
	$- 0.3$		$- 6.8$		$- 675$		$- 4.82$		$- 17.86$
	<u>      </u>		<u>      </u>		<u>      </u>		<u>      </u>		<u>      </u>

6. Name the shape.



7. What is the volume?



8. Sandra bought a milkshake for 85¢ and a hot dog for 55¢. She paid with a \$2 bill. What change should she get back?

# Skills Check Up — Chapters 1 to 5

Give the correct answer for each: (a), (b), (c), or (d).

$$\begin{array}{r} 1. \quad 503\,948 \\ + 249\,822 \\ \hline \end{array}$$

- (a) 753 870      (b) 742 760  
(c) 753 770      (d) 853 870

3. The numeral for five thousand, three hundred four is:

(a) 5034 (b) 5304 (c) 5340 (d) 534.

$$\begin{array}{r} 5. \quad 4.1 \\ + 6.9 \\ \hline \end{array}$$

- (a) 11.0    (b) 10.1  
(c) 10.1    (d) 101

$$\begin{array}{r} 7. \quad 8 \times 9 \\ \hline \end{array}$$

- (a) 56    (b) 64  
(c) 72    (d) 81

$$\begin{array}{r} 9. \quad 5 \overline{)265} \\ \hline \end{array}$$

- (a) 43    (b) 413  
(c) 51    (d) 53

11. Our numeral for LXXIX is:  
(a) 79    (b) 81    (c) 129    (d) 131.

13. Which is longer than 25 cm?

- (a) 5 m              (b) 5 mm  
(c) 100 mm        (d) 50 mm

$$\begin{array}{r} 2. \quad 360\,454 \\ - 58\,960 \\ \hline \end{array}$$

- (a) 312 594      (b) 301 494  
(c) 311 494      (d) 312 394

4. The fraction for the coloured part is:



- (a)  $\frac{1}{10}$     (b)  $\frac{1}{4}$     (c)  $\frac{4}{10}$     (d)  $\frac{4}{6}$ .

$$\begin{array}{r} 6. \quad \$16.54 \\ - 9.78 \\ \hline \end{array}$$

- (a) \$7.76    (b) \$6.86  
(c) \$7.86    (d) \$6.76

$$\begin{array}{r} 8. \quad 259 \\ \times 7 \\ \hline \end{array}$$

- (a) 1453    (b) 1813  
(c) 266    (d) 252

$$\begin{array}{r} 10. \quad 8 \overline{)370} \\ \hline \end{array}$$

- (a) 42 R 4    (b) 46 R 2  
(c) 48 R 4    (d) 46 R 4

12. There are 325 apples in each box.  
There are 5 boxes.  
How many apples altogether?

- (a) 65    (b) 330    (c) 605    (d) 1625

# Skills Check Up — Chapters 6 to 11

Give the correct answer for each: (a), (b), (c), or (d).

1. Calculate the area in square units.



- (a) 8 (b) 9 (c) 18 (d) 20

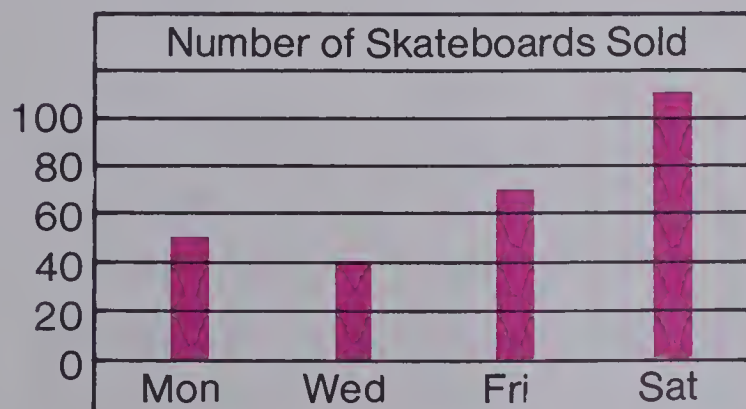
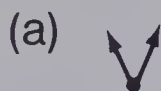
3. 
$$\begin{array}{r} 600.03 \\ -298.19 \\ \hline \end{array}$$
 (a) 412.94 (b) 401.84  
(c) 312.94 (d) 301.84

5. This is an example of a



- (a) slide (b) turn (c) flip  
(d) turn and flip.

7. Which is a right angle?



2. Change to decimal form:  $\frac{64}{100}$ .

- (a) 0.064 (b) 0.64 (c) 6.4 (d) 64

4.  $\frac{9}{10} - \frac{3}{10}$

- (a)  $\frac{6}{10}$  (b)  $\frac{12}{10}$  (c)  $\frac{1.2}{10}$  (d)  $\frac{27}{100}$

6. Round 383.5 to the nearest hundred.

- (a) 300 (b) 384 (c) 380 (d) 400

8. A railway car is 14 m long.  
There are 123 cars in the train.  
How long is the train?

- (a) 1522 (b) 1622  
(c) 1722 (d) 1822

9. The number of skateboards sold on Friday was:

- (a) 80 (b) 60  
(c) 70 (d) 90.



# Extra Practice — Chapter One

Add.

- |  |   |   |   |   |    |
|--|---|---|---|---|----|
| 1. (a) $\begin{array}{r} 45 \\ + 23 \\ \hline \end{array}$   | (b) $\begin{array}{r} 65 \\ + 30 \\ \hline \end{array}$   | (c) $\begin{array}{r} 27 \\ + 51 \\ \hline \end{array}$   | (d) $\begin{array}{r} 32 \\ + 43 \\ \hline \end{array}$   | (e) $\begin{array}{r} 50 \\ + 24 \\ \hline \end{array}$   | 6  |
| 2. (a) $\begin{array}{r} 56 \\ + 28 \\ \hline \end{array}$   | (b) $\begin{array}{r} 47 \\ + 35 \\ \hline \end{array}$   | (c) $\begin{array}{r} 73 \\ + 18 \\ \hline \end{array}$   | (d) $\begin{array}{r} 29 \\ + 36 \\ \hline \end{array}$   | (e) $\begin{array}{r} 48 \\ + 18 \\ \hline \end{array}$   | 7  |
| 3. (a) $\begin{array}{r} 325 \\ + 214 \\ \hline \end{array}$ | (b) $\begin{array}{r} 503 \\ + 162 \\ \hline \end{array}$ | (c) $\begin{array}{r} 420 \\ + 328 \\ \hline \end{array}$ | (d) $\begin{array}{r} 608 \\ + 230 \\ \hline \end{array}$ | (e) $\begin{array}{r} 563 \\ + 221 \\ \hline \end{array}$ | 17 |
| 4. (a) $\begin{array}{r} 534 \\ + 267 \\ \hline \end{array}$ | (b) $\begin{array}{r} 649 \\ + 282 \\ \hline \end{array}$ | (c) $\begin{array}{r} 408 \\ + 297 \\ \hline \end{array}$ | (d) $\begin{array}{r} 356 \\ + 357 \\ \hline \end{array}$ | (e) $\begin{array}{r} 293 \\ + 397 \\ \hline \end{array}$ | 19 |

Subtract.

- |  |   |   |   |   |    |
|--|---|---|---|---|----|
| 5. (a) $\begin{array}{r} 42 \\ - 27 \\ \hline \end{array}$   | (b) $\begin{array}{r} 83 \\ - 39 \\ \hline \end{array}$   | (c) $\begin{array}{r} 61 \\ - 25 \\ \hline \end{array}$   | (d) $\begin{array}{r} 74 \\ - 19 \\ \hline \end{array}$   | (e) $\begin{array}{r} 55 \\ - 26 \\ \hline \end{array}$   | 22 |
| 6. (a) $\begin{array}{r} 547 \\ - 213 \\ \hline \end{array}$ | (b) $\begin{array}{r} 683 \\ - 251 \\ \hline \end{array}$ | (c) $\begin{array}{r} 427 \\ - 106 \\ \hline \end{array}$ | (d) $\begin{array}{r} 866 \\ - 450 \\ \hline \end{array}$ | (e) $\begin{array}{r} 798 \\ - 635 \\ \hline \end{array}$ | 23 |
| 7. (a) $\begin{array}{r} 326 \\ - 159 \\ \hline \end{array}$ | (b) $\begin{array}{r} 514 \\ - 267 \\ \hline \end{array}$ | (c) $\begin{array}{r} 433 \\ - 178 \\ \hline \end{array}$ | (d) $\begin{array}{r} 661 \\ - 294 \\ \hline \end{array}$ | (e) $\begin{array}{r} 725 \\ - 337 \\ \hline \end{array}$ | 24 |
| 8. (a) $\begin{array}{r} 640 \\ - 213 \\ \hline \end{array}$ | (b) $\begin{array}{r} 407 \\ - 252 \\ \hline \end{array}$ | (c) $\begin{array}{r} 580 \\ - 367 \\ \hline \end{array}$ | (d) $\begin{array}{r} 704 \\ - 466 \\ \hline \end{array}$ | (e) $\begin{array}{r} 501 \\ - 173 \\ \hline \end{array}$ | 27 |
| 9. (a) $\begin{array}{r} 704 \\ - 336 \\ \hline \end{array}$ | (b) $\begin{array}{r} 402 \\ - 257 \\ \hline \end{array}$ | (c) $\begin{array}{r} 306 \\ - 149 \\ \hline \end{array}$ | (d) $\begin{array}{r} 805 \\ - 428 \\ \hline \end{array}$ | (e) $\begin{array}{r} 606 \\ - 359 \\ \hline \end{array}$ | 28 |

# Extra Practice — Chapter Two

Give the meaning of each underlined digit.

34

1. (a) 2483 (b) 56 019 (c) 874 (d) 3570 (e) 178 644

Compare. Use  $>$ ,  $<$ , or  $=$ .

35

2. (a) 219 ● 241 (b) 3620 ● 3492 (c) 553 ● 535 (d) 6037 ● 6370  
(e) 482 ● 482 (f) 7219 ● 7291 (g) 4926 ● 4629 (h) 8818 ● 8881

Add.

38

3. (a) 
$$\begin{array}{r} 275 \\ + 187 \\ \hline \end{array}$$
 (b) 
$$\begin{array}{r} 825 \\ + 497 \\ \hline \end{array}$$
 (c) 
$$\begin{array}{r} 4628 \\ + 2547 \\ \hline \end{array}$$
 (d) 
$$\begin{array}{r} 5073 \\ + 3689 \\ \hline \end{array}$$

39

4. (a) 
$$\begin{array}{r} 50\,487 \\ + 34\,861 \\ \hline \end{array}$$
 (b) 
$$\begin{array}{r} 26\,409 \\ + 31\,892 \\ \hline \end{array}$$
 (c) 
$$\begin{array}{r} 319\,785 \\ + 114\,036 \\ \hline \end{array}$$
 (d) 
$$\begin{array}{r} 143\,006 \\ + 219\,185 \\ \hline \end{array}$$

41

5. (a) 
$$\begin{array}{r} 240 \\ 3018 \\ + 2452 \\ \hline \end{array}$$
 (b) 
$$\begin{array}{r} 1703 \\ 1514 \\ + 2086 \\ \hline \end{array}$$
 (c) 
$$\begin{array}{r} 3442 \\ 617 \\ + 1579 \\ \hline \end{array}$$
 (d) 
$$\begin{array}{r} 4510 \\ 1632 \\ + 987 \\ \hline \end{array}$$

Subtract.

42

6. (a) 
$$\begin{array}{r} 5841 \\ - 3275 \\ \hline \end{array}$$
 (b) 
$$\begin{array}{r} 6307 \\ - 2414 \\ \hline \end{array}$$
 (c) 
$$\begin{array}{r} 4068 \\ - 1589 \\ \hline \end{array}$$
 (d) 
$$\begin{array}{r} 2044 \\ - 246 \\ \hline \end{array}$$

43

7. (a) 
$$\begin{array}{r} 37\,259 \\ - 19\,410 \\ \hline \end{array}$$
 (b) 
$$\begin{array}{r} 48\,071 \\ - 22\,518 \\ \hline \end{array}$$
 (c) 
$$\begin{array}{r} 329\,380 \\ - 110\,684 \\ \hline \end{array}$$
 (d) 
$$\begin{array}{r} 157\,721 \\ - 23\,952 \\ \hline \end{array}$$

52

8. (a) Marina drew a line 4 m long. How many decimetres? How many centimetres?  
(b) Paul drew a line 3 dm long. How many centimetres? How many millimetres?

# Extra Practice — Chapter Three

Multiply.

1. (a)  $6 \times 0$       (b)  $1 \times 7$       (c)  $0 \times 9$       (d)  $4 \times 1$       (e)  $1 \times 1$

64

Round to the nearest multiple of 10.

2. (a) 42      (b) 29      (c) 81      (d) 55      (e) 17      (f) 64

81

Round to the nearest multiple of 100.

3. (a) 224      (b) 450      (c) 313      (d) 105      (e) 666      (f) 542

92

Multiply.

4. (a)  $1 \times 23$       (b)  $35 \times 1000$       (c)  $100 \times 42$       (d)  $155 \times 10$       (e)  $1000 \times 4$

80

5. (a)  $6 \times 40$       (b)  $80 \times 3$       (c)  $300 \times 2$       (d)  $7 \times 500$       (e)  $5 \times 90$

83

Estimate these products.

6. (a)  $5 \times 37$       (b)  $4 \times 29$       (c)  $6 \times 48$       (d)  $7 \times 52$       (e)  $3 \times 88$

85

Multiply.

7. (a)  $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$       (b)  $\begin{array}{r} 43 \\ \times 3 \\ \hline \end{array}$       (c)  $\begin{array}{r} 61 \\ \times 4 \\ \hline \end{array}$       (d)  $\begin{array}{r} 51 \\ \times 8 \\ \hline \end{array}$       (e)  $\begin{array}{r} 72 \\ \times 3 \\ \hline \end{array}$

87

8. (a)  $\begin{array}{r} 28 \\ \times 6 \\ \hline \end{array}$       (b)  $\begin{array}{r} 73 \\ \times 4 \\ \hline \end{array}$       (c)  $\begin{array}{r} 52 \\ \times 7 \\ \hline \end{array}$       (d)  $\begin{array}{r} 34 \\ \times 5 \\ \hline \end{array}$       (e)  $\begin{array}{r} 32 \\ \times 8 \\ \hline \end{array}$

89

9. (a)  $\begin{array}{r} 312 \\ \times 2 \\ \hline \end{array}$       (b)  $\begin{array}{r} 230 \\ \times 3 \\ \hline \end{array}$       (c)  $\begin{array}{r} 462 \\ \times 4 \\ \hline \end{array}$       (d)  $\begin{array}{r} 316 \\ \times 5 \\ \hline \end{array}$       (e)  $\begin{array}{r} 521 \\ \times 6 \\ \hline \end{array}$

94

10. (a)  $\begin{array}{r} 353 \\ \times 4 \\ \hline \end{array}$       (b)  $\begin{array}{r} 232 \\ \times 8 \\ \hline \end{array}$       (c)  $\begin{array}{r} 645 \\ \times 3 \\ \hline \end{array}$       (d)  $\begin{array}{r} 247 \\ \times 6 \\ \hline \end{array}$       (e)  $\begin{array}{r} 425 \\ \times 5 \\ \hline \end{array}$

95



# Extra Practice — Chapter Four

Write a division sentence for each.

101

1. How many groups of:

- (a) 4 in 24?      (b) 7 in 35?      (c) 3 in 72?      (d) 5 in 30?      (e) 6 in 18?

Divide.

106

2. (a)  $16 \div 16$       (b)  $24 \div 1$       (c)  $7 \div 1$       (d)  $35 \div 35$       (e)  $1 \div 1$

107

3. (a)  $30 \div 10$       (b)  $700 \div 10$       (c)  $6000 \div 100$       (d)  $5000 \div 1000$

113

4. (a)  $6 \overline{)27}$       (b)  $5 \overline{)22}$       (c)  $7 \overline{)50}$       (d)  $4 \overline{)30}$       (e)  $8 \overline{)49}$

113

5. (a)  $4 \overline{)42}$       (b)  $6 \overline{)51}$       (c)  $5 \overline{)37}$       (d)  $6 \overline{)57}$       (e)  $7 \overline{)62}$

115

6. (a)  $6 \overline{)240}$       (b)  $2 \overline{)600}$       (c)  $5 \overline{)3000}$       (d)  $7 \overline{)4200}$       (e)  $4 \overline{)160}$

Estimate the quotient. Use multiples of 10.

116

7. (a)  $4 \overline{)91}$       (b)  $2 \overline{)107}$       (c)  $7 \overline{)232}$       (d)  $5 \overline{)163}$       (e)  $6 \overline{)200}$

Divide.

117

8. (a)  $5 \overline{)125}$       (b)  $4 \overline{)164}$       (c)  $3 \overline{)84}$       (d)  $7 \overline{)175}$       (e)  $9 \overline{)378}$

119

9. (a)  $2 \overline{)229}$       (b)  $7 \overline{)255}$       (c)  $4 \overline{)295}$       (d)  $9 \overline{)668}$       (e)  $8 \overline{)507}$

119

10. (a)  $4 \overline{)176}$       (b)  $5 \overline{)304}$       (c)  $8 \overline{)499}$       (d)  $7 \overline{)483}$       (e)  $9 \overline{)541}$

120

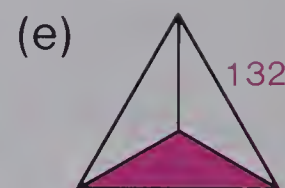
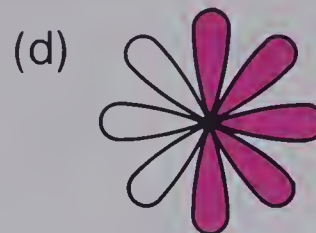
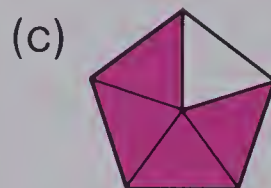
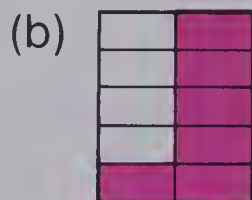
11. (a)  $5 \overline{)189}$       (b)  $4 \overline{)145}$       (c)  $6 \overline{)357}$       (d)  $3 \overline{)140}$       (e)  $7 \overline{)226}$

123

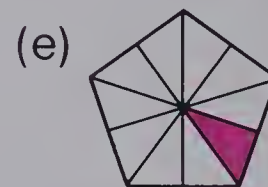
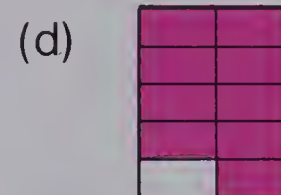
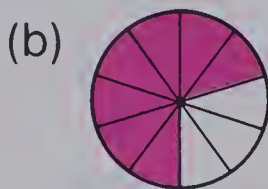
12. (a)  $0 \div 2$       (b)  $14 \div 0$       (c)  $0 \times 10$       (d)  $0 \div 26$       (e)  $5 \times 0$

# Extra Practice — Chapter Five

1. Write the fraction for the coloured part.



2. Write the decimal for the coloured part.



Add.

3. (a) 
$$\begin{array}{r} 0.3 \\ + 0.6 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 0.6 \\ + 0.9 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 0.4 \\ + 0.8 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 1.6 \\ + 0.6 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} 3.7 \\ + 2.2 \\ \hline \end{array}$$

(f) 
$$\begin{array}{r} 5.8 \\ + 2.1 \\ \hline \end{array}$$

4. (a) 
$$\begin{array}{r} \$6.34 \\ + 2.52 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} \$44.14 \\ + 9.38 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} \$63.45 \\ + 2.98 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} \$30.04 \\ + 9.99 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} \$60.89 \\ + 8.98 \\ \hline \end{array}$$

Subtract.

5. (a) 
$$\begin{array}{r} 0.8 \\ - 0.3 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 0.9 \\ - 0.4 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 1.4 \\ - 0.7 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 1.9 \\ - 0.9 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} 1.6 \\ - 0.9 \\ \hline \end{array}$$

(f) 
$$\begin{array}{r} 1.4 \\ - 0.7 \\ \hline \end{array}$$

6. (a) 
$$\begin{array}{r} 4.6 \\ - 3.2 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 6.9 \\ - 2.7 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 7.3 \\ - 2.7 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 8.1 \\ - 3.6 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} 3.8 \\ - 1.9 \\ \hline \end{array}$$

(f) 
$$\begin{array}{r} 2.6 \\ - 0.9 \\ \hline \end{array}$$

7. (a) 
$$\begin{array}{r} \$5.86 \\ - 2.23 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} \$9.28 \\ - 3.83 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} \$17.84 \\ - 9.97 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} \$50.02 \\ - 13.28 \\ \hline \end{array}$$

(e) 
$$\begin{array}{r} \$38.32 \\ - 19.46 \\ \hline \end{array}$$

# Extra Practice — Chapters Six and Seven

1. A truck carries 8 cartons.  
Each carton has a mass of 42 kg.  
What is the total mass of all the cartons?

2. The variety store has 42 chocolate bars, 56 packages of bubble gum, and 156 bottles of pop.  
6 bottles of pop go in each carton.  
How many cartons are needed?

3. One bag of fertilizer costs \$6.66.  
A gardener bought two bags.  
How much change would she get from a twenty-dollar bill?

4. Two sides of a triangle are 6.4 cm and 3.2 cm long.  
The perimeter is 15.4 cm.  
What is the length of the third side?

5. Copy and complete.

$1 \text{ L} = \blacksquare \text{ mL}$

$1 \text{ kg} = \blacksquare \text{ g}$

$1000 \text{ g} = \blacksquare \text{ kg}$

$2 \text{ L} = \blacksquare \text{ mL}$

$2 \text{ kg} = \blacksquare \text{ g}$

$3000 \text{ g} = \blacksquare \text{ kg}$

$3 \text{ L} = \blacksquare \text{ mL}$

$5 \text{ kg} = \blacksquare \text{ g}$

$5000 \text{ g} = \blacksquare \text{ kg}$

$5 \text{ L} = \blacksquare \text{ mL}$

$10 \text{ kg} = \blacksquare \text{ g}$

$7000 \text{ g} = \blacksquare \text{ kg}$

Refer to the shapes for Exercises 6 and 7.

6. Label two loops as shown.  
Sort the shapes.



At least one flat surface.



No flat surfaces.

7. Repeat Exercise 6 using these loops.

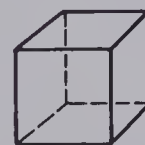


All vertices are square.



Not all vertices are square.

A



B



C



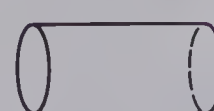
D



E



F



G



185-192



# Extra Practice — Chapters Eight and Nine

215

1. Write each as a decimal.

(a)  $\frac{6}{10}$    (b)  $\frac{25}{100}$    (c)  $\frac{7}{100}$

2. Write each as a fraction.

(a) 0.3   (b) 0.87   (c) 0.09

Add.

221

3. (a) 
$$\begin{array}{r} 5.37 \\ + 4.29 \\ \hline \end{array}$$
   (b) 
$$\begin{array}{r} 10.45 \\ + 6.85 \\ \hline \end{array}$$
   (c) 
$$\begin{array}{r} 26.61 \\ + 12.89 \\ \hline \end{array}$$
   (d) 
$$\begin{array}{r} 345.20 \\ + 22.96 \\ \hline \end{array}$$
   (e) 
$$\begin{array}{r} 532.86 \\ + 403.78 \\ \hline \end{array}$$

Subtract.

223

4. (a) 
$$\begin{array}{r} 9.54 \\ - 4.17 \\ \hline \end{array}$$
   (b) 
$$\begin{array}{r} 7.05 \\ - 2.86 \\ \hline \end{array}$$
   (c) 
$$\begin{array}{r} 24.21 \\ - 12.17 \\ \hline \end{array}$$
   (d) 
$$\begin{array}{r} 614.03 \\ - 51.28 \\ \hline \end{array}$$
   (e) 
$$\begin{array}{r} 323.14 \\ - 163.29 \\ \hline \end{array}$$

Find the missing addends.

227

5. (a)  $24 + \blacksquare = 57$    (b)  $\blacksquare + 12.5 = 18.7$    (c)  $0.72 + \blacksquare = 3.15$

Find the missing numbers.

246-247

6. (a)  $4 \times n = 32$    (b)  $n \times 5 = 35$    (c)  $88 \div n = 11$    (d)  $n \div 6 = 12$

Multiply.

250

7. (a)  $1.8 \times 10$    (b)  $0.3 \times 10$    (c)  $61.5 \times 10$    (d)  $4.4 \times 10$

257

8. (a) 
$$\begin{array}{r} 46 \\ \times 23 \\ \hline \end{array}$$
   (b) 
$$\begin{array}{r} 81 \\ \times 35 \\ \hline \end{array}$$
   (c) 
$$\begin{array}{r} 614 \\ \times 13 \\ \hline \end{array}$$
   (d) 
$$\begin{array}{r} 562 \\ \times 47 \\ \hline \end{array}$$
   (e) 
$$\begin{array}{r} 298 \\ \times 47 \\ \hline \end{array}$$

Divide.

251

9. (a)  $8 \div 10$    (b)  $0.6 \div 10$    (c)  $3.3 \div 10$    (d)  $25.7 \div 10$

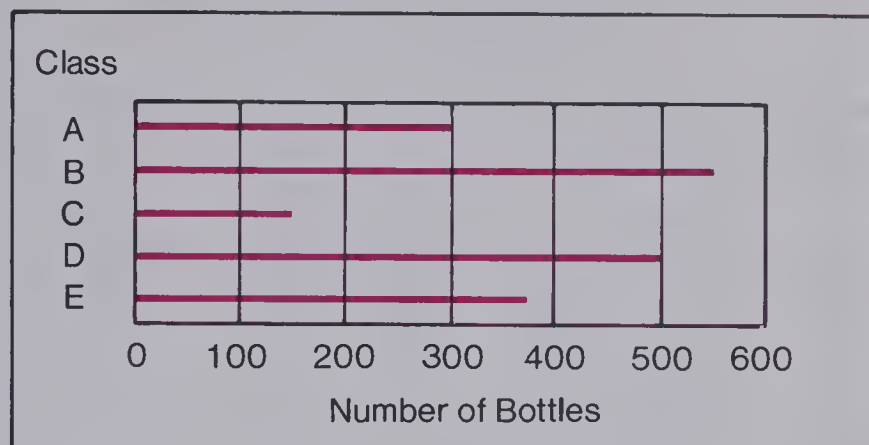
262

10. (a)  $4 \overline{)148}$    (b)  $5 \overline{)177}$    (c)  $3 \overline{)735}$    (d)  $6 \overline{)1448}$    (e)  $4 \overline{)948}$

# Extra Practice — Chapters Ten and Eleven

290

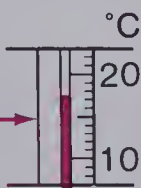
- Which class collected the most bottles? the fewest?
- Which class collected about twice as many as Class C?
- About how many did class E collect?

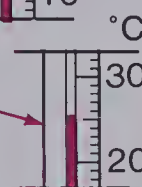


291

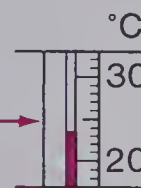
- Draw a line graph to show the number of ducks counted.

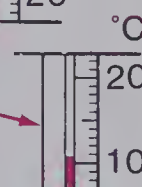
Mallards	3000	Teal	2500	Canvasback	1000
Pintails	1500	Goldeneye	500	Wood ducks	750

- Temperature at sunrise. → 

Temperature at noon. → 

How many degrees did the temperature rise?

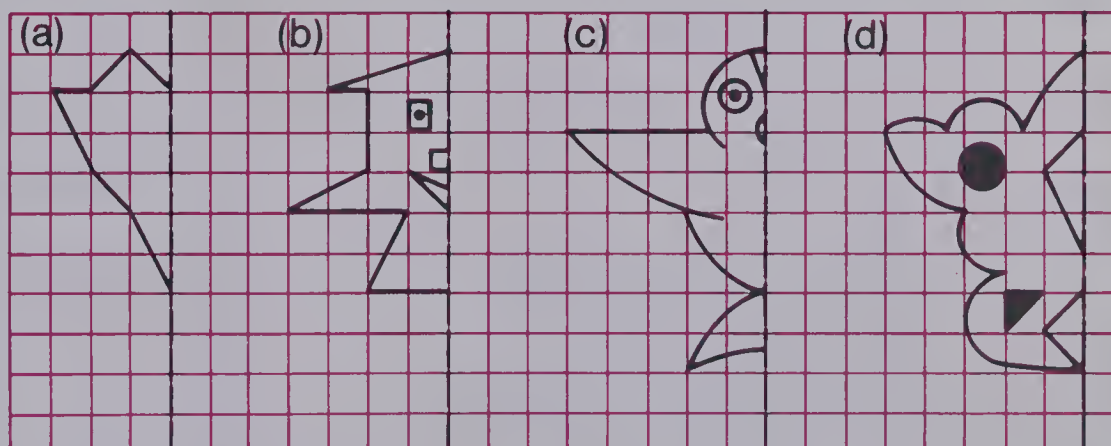
- Temperature at 15:00. → 

Temperature at 21:00. → 

How many degrees did the temperature drop?

314

- Trace or copy each shape on squared paper.  
Complete the other half of each.



# Answers to Selected Problems

## Chapter 1

- Page 1** 1. (b) 8 (c) 14
- Page 2** 1. 35  
2. 52
- Page 3** 21. 5 ones 22. 5 tens 27. 28 34. 75
- Page 5** 1. (a) 12 (b) 8 (c) 9  
2. (a) 7 (b) 6 (c) 4  
3. (a) 13 (b) 11 (c) 14
- Page 6** 1. 55 2. 67 6. 95 7. 97
- Page 7** 2. 8 tens and 6 ones 5. 81 6. 84  
10. 65 11. 93
- Page 8** 1. 78 hockey cards
- Page 9** 1. True 2. False 3. True 7.  $9 + 7 = 16$   
8.  $4 = 7 - 3$  9.  $15 - 8 = 7$
- Page 10** 1. (a) The question is about stories.  
How many stories altogether?  
Uva has 6 stories and Julie has  
8 stories.  
You should add.  
(b)  $6 + 8 = \blacksquare$   
(c)  $6 + 8 = 14$
- Page 12** 1. (a)  $3 + 5 = 8$ ;  $5 + 3 = 8$   
2. (a)  $41 + 23 = 64$ ;  $23 + 41 = 64$   
3.  $26 + 37 = 63$  4.  $37 + 26 = 63$   
7. 83 8. 83
- Page 13** 1. (a)  $(4 + 5) + 6 = 15$ ,  $4 + (5 + 6) = 15$   
The sums are the same.
- Page 14** 1.  $2 + (7 + 3) = 12$  2. 19 3. 17  
4. 17 12. 17 13. 19 14. 15
- Page 15** 3. 20 4. 20
- Page 16** 4. 503 7. 782  
11. four hundred twenty-eight
- Page 17** 1. 685 2. 648 3. 798
- Page 18** 1. 10 4. 2 tens 10. 1 hundred
- Page 19** 1. 415 2. 747 3. 451

- Page 21** 1. 27 2. 23 6. 31 7. 73
- Page 22** 2. 6 tens 15 ones 5. 15  
6. 13 10. 46 11. 26
- Page 23** 1. 243 2. 318 3. 25
- Page 24** 3. (a) 367 (b) 388
- Page 26** 1. False 2. True 6. 742 7. 53  
8. 444
- Page 27** 1. 35 2. 34 6. 464 7. 156
- Page 28** 2. 2 hundreds 9 tens 17 ones  
4. 276 5. 169
- Page 29** 2. 7 hundreds 9 tens 10 ones  
4. 343 5. 376

## Chapter 2

- Page 33** 1. (c) 6502 (d) 2485 2. (a) 6247
- Page 34** 1. 52 000 9. 5 hundred
- Page 35** 1.  $14 > 10$  2.  $23 < 29$  3.  $12 = 12$   
14.  $382 > 359$  15.  $508 < 578$
- Page 36** 1.  $5243 < 5261$  2.  $3860 > 3265$
- Page 37** 1. 10 tens 4. 1 hundred 8. 1 thousand
- Page 38** 1. (a) 1215 (b) 1547  
3. (a) 6442 (b) 8193
- Page 39** 1. 65 231 5. 60 625 6. 375 328
- Page 41** 1. 4351 2. 4822
- Page 42** 1. 4364 2. 3732 3. 3577
- Page 43** 1. 7034 4. 8535 5. 27 485  
6. 24 664
- Page 49** 1. A is 30 mm or 3 cm long;  
B is 80 mm or 8 cm long;  
C is 110 mm or 11 cm long.  
2. 85 mm is shorter than 9 cm.  
121 mm is longer than 12 cm.



**Page 50** 2.  $10\text{ dm} = 1\text{ m}$  3.  $10\text{ cm} = 1\text{ dm}$ ;  
 $20\text{ cm} = 2\text{ dm}$ ;  $30\text{ cm} = 3\text{ dm}$ ;  
 $50\text{ cm} = 5\text{ dm}$ ;  $100\text{ cm} = 10\text{ dm}$ ;  
 $100\text{ cm} = 1\text{ m}$

**Page 52** 1. (a)  $100\text{ cm}$  (b)  $10\text{ dm}$   
2. (a)  $200\text{ cm}$  (b)  $20\text{ dm}$

**Page 54** 1.  $10\text{ mm} = 1\text{ cm}$ ;  $100\text{ cm} = 1\text{ m}$ ;  
 $10\text{ cm} = 1\text{ dm}$ ;  $1000\text{ m} = 1\text{ km}$

**Page 56** 1. (a) 15 (b) 8 (c) 2  
2. (a) 9 (b) 90 (c) 59

**Page 57** 3. (a) XXXVII (b) XLIX (c) CXXIX

## Chapter 3

**Page 61** 1. There are 12 batteries.

**Page 62** 3. (b)  $4 \times 3 = 12$  (c)  $3 \times 6 = 18$   
(d)  $4 \times 5 = 20$   
4. (b)  $6 + 6 = 12$  (c)  $5 + 5 = 10$

**Page 63** 1. 8 2. 10 3. 18 4. 12 17. 8

**Page 64** 1. (a) 6 (b) 3 2. (a) 0 (b) 0  
3. (a) 4 (b) 0

**Page 65** 1. (a) 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30  
2. (a) 8, 16, 24, 32, 40, 48, 56, 64, 72,  
80. Add 8.

**Page 66** 1. (a) 0, 2, 4, 6, 8, 10, 12, 14, 16, 18,  
20. Multiples of 2.  
2. (a) Multiples of 2.

**Page 67** 1.  $4 + 4 + 4 = 12$ ;  $3 \times 4 = 12$   
 $3 + 3 + 3 + 3 = 12$ ;  $4 \times 3 = 12$

**Page 68** 1.  $1 \times 2 = 2$ ;  $2 \times 1 = 2$   
2.  $2 \times 6 = 12$ ;  $6 \times 2 = 12$

**Page 71** 1.  $4 \times 7 = 28$  3.  $4 \times 5 = 20$

**Page 72** 1. 0, 2, 4, 6, 8 5. (a) an even (b) an even

**Page 73** 1.  $1 \times 5 = 5$  Yes,  $1 \times 5 = 5 \times 1$ .

**Page 75** 4. 3 fives and 3 fives  
4 fives and 2 fives  
2 fives and 4 fives  
1 five and 5 fives  
5 fives and 1 five

**Page 77** 7. (a)  $8 \times 9 = 72$  (b)  $9 \times 7 = 63$   
(c)  $6 \times 10 = 60$

**Page 80** 1. (a)  $25 \times 1 = 25$ ,  $25 \times 10 = 250$ ,  
 $25 \times 100 = 2500$ ,  $25 \times 1000 = 25\,000$   
3. (a) 940 (b) 5600 (c) 19

**Page 81** 1. 41, 42, 43, and 44 are closer to 40.  
46, 47, 48, and 49 are closer to 50.  
4. (a) 40 (b) 30

**Page 82** 1. (a)  $1 \times (3 \times 2) = 6$ ;  $(1 \times 3) \times 2 = 6$   
2. (a)  $(4 \times 2) \times 0 = 0$   
3. (a)  $(1 \times 2) \times 10 = 20$  or  
 $1 \times (2 \times 10) = 20$

**Page 83** 2. (a)  $4 \times 60 = 240$  4. (a)  $8 \times 40 = 320$

**Page 85** 6. (a)  $8 \times 40 = 320$  7. (a)  $5 \times 30 = 150$

**Page 86** 2. (a) 36 (b)  $4 \times 21 = 84$

**Page 87** 1. 96 4. 168 5. 66

**Page 88** 1. 204 4. (a) 222 (b) 134

**Page 89** 1. 228 2. 252 3. 365

**Page 91** 1. 1812 4. 1456 5. 3132

**Page 92** 1. 210, 220, 230, and 240 are closer to  
200. 260, 270, 280, and 290 are  
closer to 300.  
4. (a) 500 (b) 200 (c) 200

**Page 93** 3. 2080 4. 636 5. 1350

**Page 94** 1. 648 2. 693 5. 428 6. 339  
9. 1446 10. 1416

**Page 95** 1. 1384 2. 2115 4. 1016 5. 1578  
6. 1765

## Chapter 4

**Page 101** 1. 3 groups of 6 in 18.  
4.  $21 \div 7 = 3$ ; 3 groups of 7 in 21.

**Page 102** 4.  $3 \times 7 = 21$ ;  $21 \div 7 = 3$

**Page 103** 6.  $6 \times 7 = 42$ ;  $42 \div 7 = 6$ ;  $42 \div 6 = 7$   
7.  $9 \times 3 = 27$ ;  $27 \div 9 = 3$ ;  $27 \div 3 = 9$   
14.  $6 \times 8 = 48$ ;  $8 \times 6 = 48$ ;  
 $48 \div 8 = 6$ ;  $48 \div 6 = 8$   
15.  $10 \times 3 = 30$ ;  $3 \times 10 = 30$ ;  
 $30 \div 10 = 3$ ;  $30 \div 3 = 10$

**Page 105** 4. 6 5. 6 6. 7

**Page 106** 1. 3 2. 1 3. 1 4. 8

**Page 108** 1.  $24 \div 6 = 4$  or  $24 \div 4 = 6$   
2.  $30 \div 6 = 5$  or  $30 \div 5 = 6$   
3.  $36 \div 6 = 6$  15. 8 16. 6 17. 9

**Page 109** 1.  $32 \div 8 = 4$  or  $32 \div 4 = 8$   
2.  $40 \div 8 = 5$  or  $40 \div 5 = 8$   
3.  $48 \div 8 = 6$  or  $48 \div 6 = 8$  15. 4  
16. 3 17. 8

**Page 113** 3. 7 R 1 4. 8 R 2 5. 6 R 3 6. 4 R 3

**Page 114** 2. 6 R 0 3. 5 R 3 4. 6 R 3

**Page 115** 7. 30;  $30 \times 8 = 240$   
8. 40;  $40 \times 3 = 120$   
9. 20;  $20 \times 9 = 180$

**Page 116** 6. Estimate 20. 7. Estimate 70.  
8. Estimate 20.

**Page 117** 1. 63 2. 37 3. 36 4. 25 5. 55  
6. 75 7. 55

**Page 118** 1. 16; 16 2. 25; 25 3. 73; 73  
$$\begin{array}{r} \times 6 \\ 16 \\ \hline 96 \end{array}$$
$$\begin{array}{r} \times 5 \\ 25 \\ \hline 125 \end{array}$$
$$\begin{array}{r} \times 3 \\ 73 \\ \hline 219 \end{array}$$

**Page 119** 1. 34 R 1 2. 79 R 0 3. 34 R 0  
4. 27 R 1 5. 23 R 0 6. 27 R 2  
7. 59 R 1

**Page 120** 5. 82 R 1 6. 48 R 1 7. 71 R 1  
8. 45 R 2

**Page 121** 4. 87 R 1 5. 67 R 3 6. 54 R 3  
7. 82 R 1

**Page 122** 3. 30 4. 2 5. 80

**Page 123** 1. 0 2. Cannot solve. 3. 0 4. 0

## Chapter 5

**Page 129** 3.  $\frac{3}{5}$  4.  $\frac{2}{5}$   
11. 3 is the numerator and 4 is the denominator.

**Page 131** 1.  $\frac{1}{5} < \frac{3}{10}$  2.  $\frac{4}{5} = \frac{8}{10}$  3.  $\frac{2}{5} > \frac{2}{10}$

**Page 132** 6. (a) matches (iii).

**Page 133** 8. (a) matches (vi). 12. 0.6

**Page 135** 4. 1.9 5. 2.7 9. 3 ones and 6 tenths  
10. 2 ones and 1 tenth

**Page 136** 1. There are 10 cm in a decimetre.  
One part is shaded.  
There are 10 parts altogether.  
The shaded part is 0.1 of a decimetre.

**Page 137** 5. 4 cm or 0.4 dm; 3 cm or 0.3 dm

**Page 138** 11. 5 dm = 0.5 m 12. 1 dm = 0.1 m

**Page 139** 3. 0.6 4. 0.6

**Page 141** 3. 1.5 4. 1.3

**Page 143** 3. 0.3 4. 0.4

**Page 145** 1. 4 ones and 5 tenths; 4.5

**Page 146** 1.  $2.4 < 4.2$  2.  $4.3 < 4.6$  5.  $3.4 > 2.1$

**Page 148** 8. 2.4 9. 4.2 10. 9.3

**Page 149** 10. 1.7 11. 2.5 12. 1.9

**Page 151** 1. \$0.67 4. \$6.72 = 6 dollars, 7 dimes,  
2 cents.

**Page 152** 2. One answer is 1 quarter, 1 dime,  
1 nickel, and 2 cents.  
3. One answer is 1 two-dollar bill,  
3 quarters, 1 nickel, and 1 cent.

**Page 153** 1. \$8.43 2. \$24.43 3. \$40.24

**Page 154** 1. \$5.23 2. \$5.72 5. \$3.59

**Page 155** 2. \$5.13 3. \$1.67

**Page 157** 1. One answer is 1 two-dollar bill, 1 one-dollar bill, 1 quarter, and 2 dimes.  
2. One answer is 1 one-dollar bill, 1 dime, and 1 nickel.

## Chapter 6

**Page 164** 1. (a) 3 (b) 5 2. (a) 5

**Page 165** 1. 5 cm 2. 6 cm 5. 6 cm

**Page 166** 1. (a) 4 cm 2. (a) 4 cm (b) 4 cm  
3. (a) 20 mm

**Page 167** 1. A 5 m 2. (a) 8 m 3. 12 dm

- Page 168** 1. (a) 4 km 2. 2 km 3. 3 km
- Page 169** 2. (a) 7 km (b) 6 km 3. (a) 13 km
- Page 170** 1. (a) 1000 m
- Page 171** 1. (a) 36 cm 2. (a) 12 cm
- Page 172** 1. The total distance Jill must walk is missing.  
2. The width of the rectangle is missing.  
3. The amount Jennifer paid is missing.
- Page 174** 2. 1 L = 1000 mL; 2 L = 2000 mL  
3. 6 small bottles will be needed.
- Page 175** 1. 1 g, 2 g, 5 g, 10 g, 100 g
- Page 176** 1. kilograms 2. litres 3. metres
- Page 177** 9. The circular road around town is about 30 km long.  
10. The capacity of a pop bottle is about 300 mL.
- Page 178** 1. 24 m long
- Page 179** 1. 24 m long
- Page 180** 1.  $\$1.89 + \$2.95 = \$4.84$   
 $\$10.00 - \$4.84 = \$5.16$   
John will have \$5.16 left.
- Page 181** 2.  $\$149.50 + \$109.99 = \$259.49$   
 $\$259.49 - \$215.00 = \$44.49$

## Chapter 7

- Page 185** 1. A cube has 6 faces. A cube has 12 edges. A cube has 8 vertices.
- Page 186** 1. A rectangular prism has 6 faces.  
A rectangular prism has 12 edges.  
A rectangular prism has 8 vertices.
- Page 187** 1.  $\overline{TV}$  is congruent to  $\overline{MN}$ .
- Page 189** 1. The bottom of the pyramid is a square.
- Page 190** 1. This prism has 5 faces. It has 9 edges.  
It has 6 vertices.
- Page 194** 1. A cylinder has two flat surfaces.
- Page 195** 1. A cone has one flat surface.
- Page 196** 1. Another name for a ball is a sphere.

- Page 197** 1. All surfaces flat: (a), (c), (f), and (h).  
Not all surfaces flat: (b), (d), (e), and (g)
- Page 201** 1. Marty earned \$6.85 in July.  
2. Marty's allowance was \$7.00 in the two months.
- Page 202** 1. 517 km 2. 711 km
- Page 204** 1. (a) 2 sailboats (b) Friday, Saturday, Sunday, Monday, and Wednesday  
(c) 1 sailboat
- Page 206** 1. 21 squirrels, 3 moose, 6 coyotes, 17 sheep, 9 chipmunks
- Page 207** 1. Litres of strawberries: Monday, 50 L; Tuesday, 35 L; Wednesday, 75 L; Thursday, 85 L; Friday, 90 L.  
4. Mr. Bobbit won the election.

## Chapter 8

- Page 214** 1.  $\frac{2}{10}$  2.  $\frac{6}{10}$  3.  $\frac{20}{100}$  4.  $\frac{35}{100}$
- Page 215** 1. 0.55 2. 0.05
- Page 216** 1. 1.46
- Page 217** 5. 2.34 9. (a) 0.62
- Page 219** 1. 23.02 9. (a) 2 thousand
- Page 220** 4. 7.99 5. 9.94
- Page 221** 3. 9.55 4. 5.59 8. 18.37
- Page 222** 4. 4.32 5. 3.30
- Page 223** 3. 4.15 4. 5.36 8. 64.17
- Page 224** 1. 101.88 6. 21.63
- Page 225** 3.  $\$0.54 > \$0.25$  4.  $\$0.86 < \$0.94$   
5.  $\$0.44 = \$0.44$
- Page 226** 1.  $2.61 < 26.1$  2.  $34.6 > 3.46$   
3.  $34.44 = 34.44$
- Page 227** 4. 29 5. \$10.55 6. 5.3
- Page 229** 1. 19 2. 78.46 cm
- Page 230** 1. Equation 2. Inequation  
9.  $4 + 6 < 13$  10.  $18 - 12 < 3 + 4$



**Page 231** 1. 1134 m

**Page 232** 4. 4 5. 7 6. 25

**Page 234** 1. Vicky rounded off:  $300 + 200$ .  
Vicky estimated:  $300 + 200 = 500$ .  
The distance is about 500 km  
altogether.

**Page 235** 1. The Forth Bridge is 198.9 m longer.

**Page 236** 1.  $\frac{4}{5}$  2.  $\frac{5}{6}$

**Page 237** 1.  $\frac{1}{6}$  2.  $\frac{3}{5}$

**Page 238** 4. 0.3 5. 0.7 11.  $\frac{3}{5} = \frac{6}{10} = 0.6$

12.  $\frac{2}{2} = \frac{10}{10} = 1.0$

**Page 239** 3.  $\frac{3}{5} + \frac{1}{5} = 0.6 + 0.2 = 0.8$

4.  $\frac{1}{10} + \frac{4}{10} = 0.1 + 0.4 = 0.5$

11.  $\frac{3}{5} - \frac{2}{5} = 0.6 - 0.4 = 0.2$

12.  $\frac{5}{5} - \frac{3}{5} = 1.0 - 0.6 = 0.4$

**Page 240** 1. 8 trees are decorated.

2.  $\frac{5}{10}$  of the boys are with dogs.  
10 trees in all.

$\frac{8}{10}$  of the trees are decorated.

**Page 241** 1.  $\frac{1}{2}$  of 6 = 3  
 $6 \div 2 = 3$

## Chapter 9

**Page 246** 1.  $8 \times 5 = 40$

4. (a)  $6 \times 4 = 24$  (b)  $6 \times 5 = 30$   
(c)  $5 \times 14 = 70$

**Page 247** 1.  $30 \div 6 = 5$

4. (a)  $12 \div 2 = 2$  (b)  $28 \div 7 = 4$   
(c)  $42 \div 7 = 6$

**Page 250** 1.  $50 \times 10 = 500$

$5 \times 10 = 50$

$0.5 \times 10 = 5$

2.  $420 \times 10 = 4200$

$42 \times 10 = 420$

$4.2 \times 10 = 42$

7. (a)  $3 \times 10 = 30$  11.  $0.6 \times 10 = 6$

(b)  $0.3 \times 10 = 3$  12.  $2.5 \times 10 = 25$

**Page 251** 1.  $60 \div 10 = 6$

$6 \div 10 = 0.6$

$0.6 \div 10 = 0.06$

2.  $350 \div 10 = 35$

$35 \div 10 = 3.5$

$3.5 \div 10 = 0.35$

7. (a)  $6 \div 10 = 0.6$  11.  $7 \div 10 = 0.7$

(b)  $0.6 \div 10 = 0.06$  12.  $0.7 \div 10 = 0.07$

**Page 253** 3. 1152 8. 1634 9. 1638 10. 1617

**Page 255** 2. 2436 3. 952 4. 738

**Page 257** 3. 19 866 8. 12 410 9. 12 814  
10. 14 392

**Page 258** 2. 42 3. 52 4. 36 R 3

**Page 259** 2. 300 5. 124 6. 326 7. 421 8. 132

**Page 261** 3. 142 6. 316 7. 132 8. 312

**Page 262** 1. 43 2. 231 3. 35 4. 231

**Page 266** 1. Millimetre matches (i);  
the thickness of a dime.  
2. Centimetre matches (a); a little more  
than the thickness of your pencil and  
(d); size of a marble. 8. centimetre

**Page 267** 1. 6 square units

**Page 268** 1.  $18 \text{ cm}^2$

**Page 269** 1.  $35 \text{ cm}^2$  2.  $112 \text{ cm}^2$

**Page 270** 1. 84 tiles

**Page 271** 2. 5 square metres in each row.  
4 rows of square metres.  
 $20 \text{ m}^2$  in the garden.

**Page 272** 1. (a) 2. (b) 3. (b)

**Page 273** 1. 216 4. 1260 5. 2080 6. 4500

**Page 274** 1. 6 cubic units 2. 12 cubic units

**Page 275** 1. 6 cubic units 2. 12 cubic units

**Page 276** 1. (a)  $10\text{ cm}^3$  in one layer.  
(b)  $20\text{ cm}^3$  in the box.  
2. (a)  $8\text{ cm}^3$  in one layer.  
(b)  $40\text{ cm}^3$  in the box.

**Page 277** 5. 12 in one layer. 6. 2 layers

## Chapter 10

**Page 281** 1. Robins are most common.  
4. Altogether, Bess saw 11 bluebirds and orioles.

**Page 283** 8. Mallards are most common.  
9. Wood ducks are least common.  
10. 13 pintail ducks were seen.  
13. 9 widgeons would be shown by a bar going to between 8 and 10.

**Page 287** 1. The mew gull is least common.  
2. The Franklin's gull and the California gull have the same population.  
3. 50 mew gulls were counted.  
6. 225 Bonaparte's gulls would be shown by a bar going to between 200 and 250.

**Page 289** 2. (a) 75 (b) 150 (c) 750

**Page 294** 1.  $34.3^\circ\text{C}$  is the lowest temperature shown.  $39.3^\circ\text{C}$  is the highest.  
5.  $1.1^\circ\text{C}$  6.  $2.1^\circ\text{C}$

**Page 298** 1. 07:00 2. 20:00 5. 07:15 or 19:15

**Page 299** 1. 30 min and 40 s after 4 or 04:30:40  
5. (a) 72 h

**Page 300** 2. She was born in 1970.  
3. He was 2 years old in 1972.

## Chapter 11

**Page 306** 2. (a) The lines cross.

**Page 307** 7. (i) (b) and (d) are parallel.

**Page 310** 1. C and E are congruent to A.

**Page 311** 4. C and D are congruent to A.

**Page 312** 1. The duck does not change shape.  
2. The duck does not change size.

**Page 314** 1. At A, they face right.  
2. At B, they face up.

**Page 318** 1. Each half is the same shape.  
2. Each half is the same size.

**Page 321** 8. D is the flip of A.

**Page 322** 1. (a) The Fair Grounds are on Fifth Avenue.  
(b) The Fair Grounds are on First Street.

**Page 323** 1. Letter A indicates where John lives.  
2. 5th and 1st

**Page 324** 1. The rose is located by (over 4, up 1).

# Index

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- 2-digit numbers, 6-7, 12, 20, 55
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- 4-digit numbers, 38, 41, 44, 55
- 5-digit numbers, 39, 44, 55
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